# The Builder.

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A Custom-House on a Quay (*Design Awarded the Soane Medallion*).....By Mr. George Drysdale.

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## *Deterioration of Stonework.*

THE present appearance of many of our public buildings, the amount of scaffolding now being erected for the purpose of renovation, and the quantity of patent stone-preserving solutions now being advertised as the correct restorative to apply to buildings which we might almost claim as extremely modern, forces upon us the conclusion that in the past no very severe test has been brought to bear upon the stone before erection. It is true that the atmospheric conditions of the British Isles are rather severe on masonry of every description, and more particularly upon ornamental stonework, but this fact should not cause architects to take the deterioration of stonework as a dispensation of Providence, but should rather incite them to a full consideration of the causes of decadence of stone which is used, and to supply stringent tests for compactness and hardness, absorption and solubility. The defects of the past should be the lesson of the future.

The object of such tests would be to give some idea whether it would be more economical to use local stone, or whether it would be better, in the long run, to procure stone of more durable properties at some distance off. The expense of transport must be placed against the probable expense in renovating later on in the life of the building, and the question of disfigurement must also be taken into account, inasmuch as when stonework decays, even before the solution is applied, mouldings and carvings have lost a good amount of sharpness.

It may, therefore, be interesting to recite some of the tests for stone which have been found by experience to be most effective. With regard to compactness the best method of examination is to use a good magnifying glass upon the surface of freshly-fractured stone. The inspection should reveal a clear bright surface with particles of stone well cemented together. A dull earthy-looking fracture indicates the likelihood of quick deterioration, whereas compact stone is often extremely durable.

The question of the absorption of stone has not been sufficiently considered in the past, or we should not have such discoloured buildings and, worse still, buildings which show lack of uniformity in discoloration. This patchy appearance has done more than anything else to spoil the good effect of many imposing buildings erected in modern times. The value of resistance to absorption is clear when it is considered that a heavy rainfall will restore a dense non-absorbent stone to a very close approximation to its original colour, owing to the fact that the surface soot and dust will be washed away from the surface, whereas with an absorbent stone the same heavy rainfall will have the effect of carrying the dirty particles into the pores of the stone, which not only spoils its appearance, but leads to decay. A good test of the power of absorption of stone is to select a good average specimen of the material proposed to be used, thoroughly dried, and then weighed. After this it is immersed in water for twenty-four hours, and when taken out the surface moisture only is dried off, and the stone is reweighed. A gain in weight of 10 per cent., due to absorbed water, should be the ground for the instant rejection of the stone, and should the stone contain a large proportion of clay an increase of weight of 5 per cent. is more than should be allowed.

Some classes of stone contain a considerable amount of earthy or mineral matter, which is soluble in water, and this property renders the stone unserviceable for durable building purposes. In order to determine to what extent this effect is found in the sample it should be crushed finely and put into a glass of water, where it should remain for half an hour. The water should be stirred well with a rotary motion, and if there is much earthy matter present the water will show a turbid appearance, whereas if the stone is good the water will, after slight settlement of the solid particles, appear almost clear.

The deteriorating effect upon stone is easily noticeable in large towns or in locations where factories exist, for the reason that the air contains traces of various acids, absorbed from the combustion of coal and other manufacturing operations, which, when dissolved by rain-water and deposited upon the stone, produce a destructive action. In order

to test the resisting properties of stone against acidulation a sample should be soaked in a dish of water containing a drop or two of hydrochloric (muriatic) acid or sulphuric acid. If there is any noticeable action of effervescence or bubbling of gases it is advisable to view the stone with some suspicion for a location such as described.

There is no doubt that, although many of the stone-preservative compositions are excellent, there is an old adage that is better than them all, and that is, "Prevention is better than cure," and for this reason it may be worth while pointing out that if good stone is not available it is advisable to use some building substance such as terra cotta. This is now being employed extensively, and although not so generally acceptable as stone, it has one very good point in comparison with stone, which is that temperature variations have not the power to disintegrate the particles. It is the temperature surrounding stonework, and which varies through such wide and sudden extremes in the course of a year in these latitudes, which makes the particles of stonework move continuously through very small amplitudes, and in course of time will produce cracks in the stonework which tend to destroy the permanence of the building. An increase of temperature produces an expansion of the particles, while a fall in temperature again contracts them. This action in a building, which by its rigidity of construction is ill-adapted to give-and-take movement, is a serious source of ageing in buildings, especially in cases where the stone has not been carefully selected, or where the best class of stone has not been procurable. In comparison with such cases ferro-concrete might prove the more durable material, though stone of the highest class shows a monumental record for endurance.

## NOTES.

**The Institute of Architects.** THE paper read, or rather the lecture delivered, by Mr. Francis Fox at the Institute of Architects on Monday, was one of the most interesting and valuable that we have heard there. An engineer who can bring before us practical methods of preserving walls and foundations, illustrated by practical diagrams, in such a manner as to give a subject of this class a really picturesque and literary interest, is a rather exceptional person, as all who heard the lecture must have felt. The illustrations of the condition of portions of Winchester Cathedral, and the manner in which they had been dealt with, were of course specially to the point at the present moment; but we were also very much interested in Mr. Fox's remarks on the picturesque value of the old high road bridges in various parts of the country, and the manner in which he had been able to preserve some of them from destruction at little cost by the application of the grouting machine to the old masonry. It is so usual nowadays to find engineers wishing to remove picturesque stone bridges and replace them by painted steel structures, that an engineer who wishes to preserve them and has found a means of doing so is a person to be much sympathised with and applauded, and we hope his grouting machine may find more extended use in so good a cause. It appears that this method is now on trial with the old Bridge of Ayr, on the preservation of which there has been so much discussion.

**Roman London.** THE first of the Carpenters' Company's spring course of lectures was delivered at Carpenters' Hall, London Wall, on Thursday last week, when an interesting lecture on Roman London was delivered by Mr. Philip Norman. One question of importance touched upon was as to the situation of the first Roman settlement, and although, as Mr. Norman said, it would in all probability never be settled, his theory was that the original settlement was not walled, but was only a bank and a palisade. Burials were fairly evenly dotted about the City, and as to remains of great buildings, although massive foundations had been found from time to time, there was an absence of remains of old Roman buildings, which was accounted for by the undoubted fact that the old buildings were used as quarries. The boundaries of the present wards within the City were probably the limits of Roman London. It contained 332 acres, and was considerably larger than any other Roman town. Silchester, as the lecturer mentioned, contained only 100 acres. Another fact which seemed to show the importance of London in those days was the manner in which the Roman roads converged on to the metropolis. The lecturer, who showed a number of lantern views, referred to several other interesting matters, and in speaking of Newgate said that when the old prison was pulled down in 1903–4 it was proved that the gate was Roman. The old name of the gate was West Gate and Chamberlain's Gate, and as to the prison it had been used as such at any rate since 1188.

**The City Explosion.** FROM the evidence of Captain Lloyd, representing the Home Office at the City Coroner's inquest, it appears that the explosion which took place last month is only the third occurrence of the kind in registered premises in the City of London since the passing of the Explosives Act in 1875. It has also been fairly established that the cheap German cartridges to which the explosion was probably due were not safety cartridges at all, as believed by the occupants of the premises. The jury were unable to form an opinion as to the exact cause of the explosion or to say if it were really due to the German cartridges, but they were clear that these were of a kind that ought not to be stored in the City. Apart from this point it is clear that the provisions of the Explosives Act require amendment, notably in the direction of empowering the local authorities to refuse registration unless satisfied that premises proposed to be used for the storage of gunpowder and cartridges are perfectly suitable for the intended purpose. The jury were quite right in asking that prompt steps should be taken with the object of placing the storage and sale of explosives under more stringent regulations in the City and other thickly populated districts.

**Rivers Pollution.** IN a paper read last week to the Royal Sanitary Institute, Sir William Ramsay made special reference to the central authority proposed by the Royal Commission on Sewage Disposal for the purpose of controlling the work of river boards. The work already done by those bodies has certainly been of much value, but more of them are required so as to provide for the improvement of rivers in every part of the country, and powers giving authority over the entire course of every river under their jurisdiction should be conferred on existing and future river boards. The functions of the proposed central authority would be to continue the work commenced by the Royal Commission by investigating all processes for the disposal of the sewage, to advise the river boards, to act as a court of appeal for the settlement of disputes between river boards and local authorities. The idea is one fully deserving support, and we hope that the Bill embodying it may receive the approval of Parliament during the present session.

**Cross-River Communications in Glasgow.** SINCE the closing of the Harbour Tunnel as the result of competition from the horse ferry established between the same points by the Clyde Trustees, cross-river traffic in Glasgow has become more congested than ever. It seems extraordinary that a public body should take upon themselves to extinguish an undertaking upon which hundreds of thousands of pounds have been spent by private capitalists. Cases of the kind are far too frequent, and so far as this tunnel is concerned the duty of the Corporation and harbour authorities is perfectly clear. The re-opening of the tunnel, however, is not sufficient, but in conjunction with an additional bridge it would effect a considerable alleviation of the existing congestion. A proposal brought before the Clyde Trustees last week contemplates the construction of a mid-river quay with a swing bridge at the upper end suitable for tramway and other traffic. The scheme may suit the purposes of the harbour authorities, but does not seem well adapted to the needs of the public. The island quay would bring extra traffic to be dealt with, and the proposed imposition of tolls is a distinctly objectionable feature.

**The Adaptability of Reinforced Concrete.** IN a lecture delivered at Sheffield University last week Mr. Moritz Kahn dealt with the practical aspects of reinforced concrete as a structural material in architecture. The lecturer contended, and very reasonably, that in all buildings where steel framing might be used reinforced concrete was an economical and efficient substitute. Of course, until building regulations take into account the superior resistance of steel and reinforced concrete, there can be no saving in using either of these materials, so far as exterior walls are concerned, and it must also be recognised that reinforced concrete is not the

cheapest form of construction for al purposes. Mr. Kahn does not regard reinforced concrete as a decorative, but as a structural material, and proposes that for architectural purposes it should be cased in stone, brick, or glazed tiles. There are some classes of work where treatment of this kind is legitimate, just as the interior of a brick-built room may properly be plastered and papered. But we do not like the idea of veneering any material employed architecturally in exterior work. It is obviously the correct thing to find suitable means of treating the surface of reinforced concrete so used; though we do not think that the higher possible forms of architectural expression can ever be evolved from so artistically unpromising a material. Certainly the attempts made so far have not been very promising.

French Experience of Tar Macadam.

TESTIMONY to the economy of road maintenance owing to treatment by tar is afforded by the report of M. Janet on the budget of Public Works of 1907, more especially on roads frequented by large numbers of motor vehicles travelling at high speeds. On highways such as these the surface is impaired by abstraction of materials in consequence of the suction of pneumatic tyres, and the employment of tar has been found very efficacious in binding the particles of road metal. On some other roads, however, the chief factors for consideration are the influence of pressure and friction from the iron tires of vehicles and the impact of horses' shoes. Data furnished by various classes of roads under the control of the French Public Works Department point to the following conclusions: (1) That the superficial application of tar is only economical upon hard varieties of road metal where traffic is thick, or upon softer stone in the case of less frequented highways; (2) that a layer formed of tar and coarse, gritty sand is to be recommended for much-frequented roads whose original surface is of inferior stone; and (3) that the renewal of road surfaces with tar macadam is also valuable for highways paved with inferior metal and where the traffic is heavy. In our opinion the third alternative will prove the most economical in the long run for highways of every class, although doubtless the first cost would be too heavy a burden for authorities who have to raise the necessary funds from local taxpayers.

The Co-partnership Village.

WE have received from the Co-partnership Tenants, Ltd., a small publication by Mr. Henry Vivian, M.P., explaining the principle of the Co-partnership Village—an example of which is now to be seen at Ealing. Such aims as those of the promoters of these communities are of the first importance. The principle on which they are based is that those who find the capital shall receive a dividend not exceeding 5 per cent., and the surplus profits are divided among the tenant members in proportion to the rents which they pay. This surplus, however, is not paid in cash, but credited to the tenants, so that in time they may have sufficient capital to become shareholders, and so the owners of their house. Of course, it is necessary in the first instance to obtain capital, and in the next to have reliable tenants. At the same time, the promoters have another object in view, to provide substantial houses with plenty of open space. The success of such a movement as this must ultimately depend on the extent to which public opinion can be influenced in its favour. Unfortunately much building development is carried out by persons whose sole object is to make as much money as possible, and these men can never be controlled except by means of the public authority of the district, and this, in its turn, will act according to the strength or weakness of public feeling.

Newgate.

THE Rev. Canon Benham's interesting lecture on Newgate at the London Institution, on Thursday the 13th inst., dealt with the prison as an institution rather than as a structure, and a good deal of time was occupied in the mention of vivid particulars of the principal criminals associated with the prison. Newgate, so-called, because of the new and much larger gate which was erected by Bishop Maurice at the time of the construction of Newgate-street, was certainly a prison from the days of Henry II., and it was used for ordinary offenders, the Tower being the destination of State offenders. Newgate at one time was a very badly-managed and unhealthy prison, the occupants being crowded together in one common room; and in the year 1750, the year of the Black Assizes, the Lord Mayor and others died of Newgate fever, the result of the pestilential air of the prison. The prison was seriously damaged during the great fire in 1666. It was rebuilt by Dance, 1770-78, and repaired by him after the Gordon riots in 1780, but had latterly ceased to be used as a prison.

Royal Academy Lectures on Sculpture.

MR. COLTON'S second and third Royal Academy lectures on sculpture were headed as "Advice to Students," and were not of much interest to any except the students; nor, to say truth, can we think that the Royal Academy students gained any important practical guide to their studies from the second lecture (the third we did not hear). In his fourth lecture on Thursday last week he spoke well on the influence of French sculptors on the art, and more especially of the works of Dalou and of the late American sculptor St. Gaudens. Among the fine lantern illustrations shown the monument by St. Gaudens, a bronze cloaked figure of "Grief" seated on a tomb, is certainly a most impressive and poetic thing; but St. Gaudens' work was over-estimated by the lecturer; the much be-praised "Shaw" monument, though it has the merit of sincerity, is totally wanting in style. Nor did we like the depreciatory tone of his reference to Flaxman—a much greater artist than some people at present understand.

## THE AQUEDUCTS OF ANCIENT ROME.—VII.

By DR. ASHBY, DIRECTOR OF THE BRITISH SCHOOL AT ROME.

THERE are two pairs of comparatively small bridges in concrete, each with a single arch, spanning unimportant streams, a kilometre to the north of the station of Monte Compatri, and to the west of the Casale Marmorelle (one shown in Fig. 21), belonging to the two upper aqueducts, which here seem to be followed by a road; while the enormous amount of deposit thrown out at the shafts, which is brought to light by cultivation, shows up strongly against the volcanic soil. The Marcia and Anio Vetus both pass close to Torre Iacova, and the latter certainly to the north of it (a small bridge in *opus quadratum*, attributable to the former, may be seen in the valley to the east of the tower; while the other two, after crossing a valley with the significant name of Forma Rotta (broken aqueduct) pass under the Via Labicana close to the thirteenth mile; and here, at the place called Trugli,* the channel of the Claudia is accessible, while two circular shafts of the Anio Novus may be seen.

In the next valley (the deep Fosso di Fontana Candida) large quantities of deposit of both aqueducts occur, and there is evidence of the existence of shafts on the hills on each side.

In the great basin of Prata Porci (an extinct crater) we find the stream, which traverses its centre, crossed by the bridges of the Anio Novus and Claudia side by side—small single-arched structures of concrete,

* Trullo or Truglio means something circular, and the reference is no doubt to the tombs of the Via Labicana (*Papers, cit.* i. 247).

*Fig.* 21.

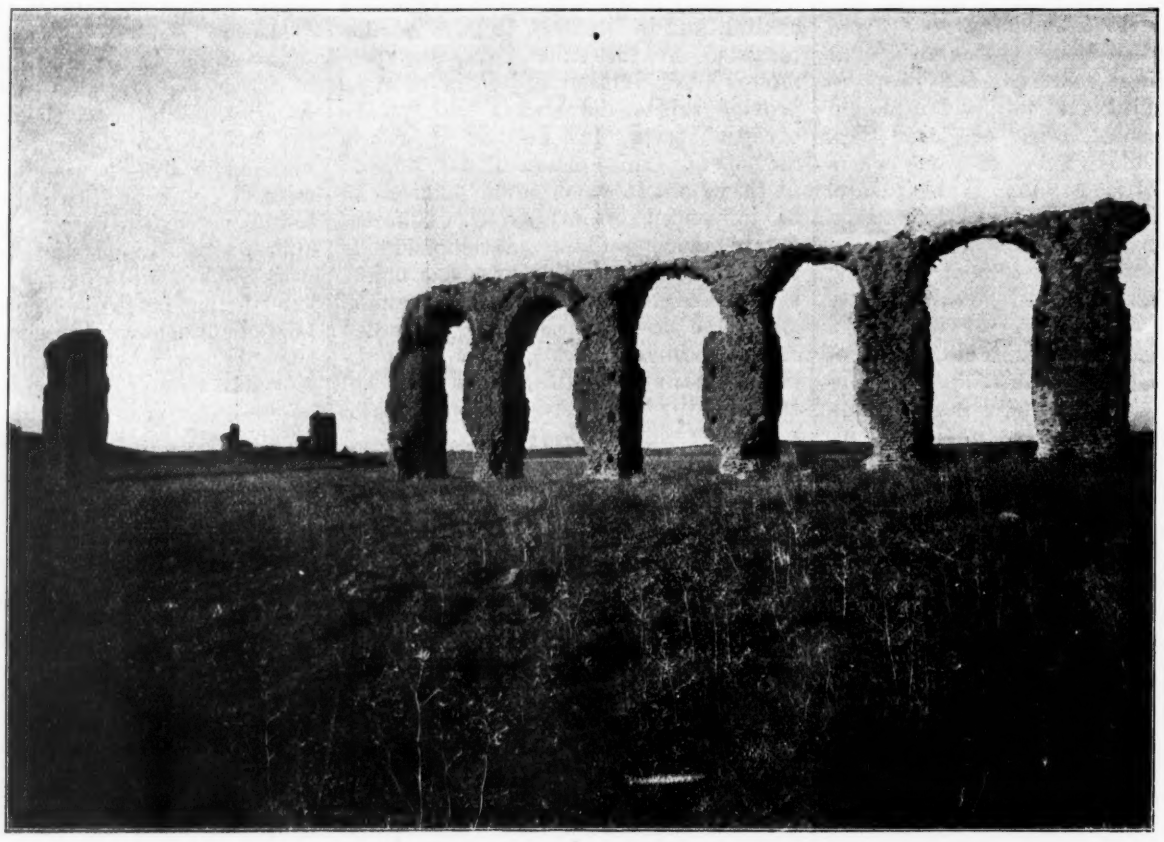

*Fig. 22. Arches of the Marcia Aqueduct.*

both faced originally with *opus reticulatum*, with buttresses faced with brickwork added. The southernmost is the higher in level, and belongs to the Anio Novus. It is worth noticing that Nibby, in his MS. notes, now in my possession (i. 113), mentions the existence of much aqueduct deposit, *resembling* that of the Claudia, and of the cement floor of an aqueduct, without drawing the right conclusion. In his published works he does not speak of it. They made their exit from it by a gap in the west side, by which a stream now issues ; this, however, can hardly have existed in ancient times, inasmuch as it utilises the actual channel of the Aqua Claudia, the original width of which may be seen on the west bank, where it has been made by cut-and-cover work in the soft tufa. The cutting is lined with concrete 0·44 metre thick on each side, and the channel is no less than 1·42 metre wide.

The bridge of the Anio Novus is a little further down-stream ; the channels must, therefore, have crossed between this point and the last mentioned ; it is of *opus reticulatum*, with stone quoins—probably, therefore, a part of the original construction, and of the usual width (1·10 metres). A little further west, close to the Fontanile Transanella, is another portion of the channel of the Anio Novus, again in *opus reticulatum*.

These two aqueducts now tunnelled through the east bank of another extinct crater—that of Pantano Secco (which, in my opinion, is to be identified with Lake Regillus—*Classical Review*, 1898, 470)—then travelling, at some height above the bottom of the crater, along its east and south sides. They can then be traced by still more insignificant indications (the floor of the channel of one of them can be seen just outside Pantano Secco) going west-south-west, and passing within two miles of Frascati ; they then turned westwards, cross the important connecting road known as the Via Cavona (*Papers, cit.* i. 176) at the precise point which in later days became one of the angles of the boundary of the Agro Romano, or territory of the City of Rome.

The Via Tuscolana then crosses them close to a fountain known as the Fontanile Vermicino. Here there is a considerable drop in the ground ; and as a small portion of the channel of one of them is visible at ground level close to the crossing of the Via Cavona (*i.e.*, at about 120 metres above sea level) above this drop, while below it they do not rise above the surface except in the bed of two branches of a small stream, where the top of the channel of the Claudia must be about 111 metres above sea level, it is probable that the water fell some 8 or 10 metres at this point—not abruptly, but very likely in clearing tanks, a hypothesis which may find confirmation from the immense amount of deposit which is to be seen on the ground hereabouts ; though here again without accurate levelling (and perhaps some excavation) absolute certainty can hardly be attained.

The aqueducts continue to be traceable —by their shafts (*putei*)* and fragments of deposit—as far as the north-west side of the great villa known as the Centroni. Here a stream now known as the Marrana Mariana, which derives its supply of water from the springs of the Aqua Iulia,† and was brought to Rome by Callixtus II. in 1122, makes use of the tunnel of the Claudia ; there are remains of the wall of the channel near the east entrance,‡ and the very *putei* are the ancient *putei*, as a fragment of *opus reticulatum* on a curve shows. The intervals vary between 74·70 and 77·50 metres, and are therefore above 240 Roman feet (71 metres), besides being slightly irregular. Fabretti speaks of it as (*op. cit.* iii. 11) "*priscam magnificentiam redolens.*" The Anio Novus had its own tunnel just to the north, and must have crossed the Aqua Claudia at each end of the tunnel. After crossing the Via Latina, which here runs a few yards to the south-west of the so-called Via Anagnina, the Anio Novus becomes traceable again, by its deposit and *cippi* (two pairs of which are about 16 ft. apart), and at one point a fragment of the *specus* may be seen, its crown being just at ground level.

The channel of the Claudia is probably occupied by the Marrana itself. After a mile or more this reaches the railway to Albano, and here the Anio Novus and Claudia must turn at right angles. They then reach the Casale Bertone, the former passing through a clearing tank, described in *Not. Scav.* 1884, 155. It consisted of two rectangular chambers, 6·70 metres by 6 and 12 metres respectively, and was found to be full of a fine granular deposit. The *piscina* described by Fabretti (*op. cit.* 114, cf *Diss.* i., tab. 18) as the clearing tank of these two aqueducts is not this one, but another over a mile to the south-east near La Pignola, on the north-east edge of the railway to Albano. They now begin to emerge above ground, having reached the end of their subterranean course.

We must now return to the Marcia and Anio Vetus. Their probable course—a good deal more devious—is not indicated in the maps already cited, as I have traced it further since these were made. Both of them keep a good deal to the north of the other two, lower down the slopes. The remains are in every case insignificant, but not devoid of interest ; and their course as marked in the map annexed to the first of these articles has been most carefully verified.

Of the Marcia, however, two portions may be mentioned. One is a line of arches, of which five are now preserved (Fig. 22), varying in span from 1·90 metre to 2·75 metres ; the piers are 1·84 metre square on an average, but vary in breadth a little. They are constructed of concrete, faced with small blocks of tufa, about the size of a modern brick. They are badly built, the scaffolding holes not being filled up, and the concrete containing fragments of marble and of aqueduct deposits, and are probably a late restoration. They lie east of the Muro Linari, a mile north-north-west of the Fontanile di Vermicino. The attribution of this fragment to the Marcia is, it must be confessed, not certain ; it may be only a branch supply.

I may also mention a line of several *cippi* (two pairs respectively 8·55 and 7·60 metres, about 29 and 26 Roman feet, apart may be seen) which seem to belong to it, running along the north bank of the Marrana ; they do not, however, exactly correspond with the heaps of deposit which seem to

* The aqueducts seem here to have been provided with *cippi*—a necessity in a thickly populated district, where their course was mainly subterranean—but I have not seen any bearing an inscription.

† So Lanciani, *op. cit.* 325, rightly (Tomassetti, *Bull. Com.* 1893, 65 *sqq.*, is of a different opinion). Lanciani did not, however, then recognise the antiquity of the tunnel ; but now cf. *Bull. Com.* 1905, 292 ; *Papers, cit.* iv. 118.

‡ The ancient channel at this point serves to bring down a spring of mineral water (Acqua Acetosa).

mark the sites of the shafts, but are a little way distant from them.

The Marcia must then have followed the other aqueducts to Capannelle; a little to the north-west of this point it, too, emerges above ground, with the channels of the Iulia and Tepula already above it.

It may fairly be supposed that the Anio Vetus also passed by Capannelle, though no traces of it have ever been found hereabouts, and it probably would not have been above ground level.

## THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday night at the rooms of the Institute, No. 9, Conduit-street, Mr. T. E. Collcutt, President, in the chair.

*Deceased Members.*

Mr. Alex. Graham, hon. secretary, announced the decease of Professor Meodahl, of Copenhagen, hon. correspondent, elected 1876. Also of Sir James Knowles, the proprietor of the *Nineteenth Century*, who was elected an Associate of the Institute in 1855, and a Fellow in 1876. Sir James many years ago was in practice as an architect, and his principal buildings were the Thatched House Club, Lord Tennyson's house in Surrey, Kensington House, the residence of the late Baron Grant, and he was also responsible for the gardens and the design of the houses in Leicester Square. Sir James took no part in the administration of the Institute, and it was rarely that he was seen in the room.

*The Late Mr. Edward Mountford.*

Mr. Graham said it was with deep regret, which would be shared by all of them, that he had to announce the decease of Mr. Edward Mountford on February 7. In the prime of his life and the fulness of his activity, some years ago Mr. Mountford was stricken with illness which rendered him incapable of rendering those services to the Institute which he had rendered on the Council for so many years previously. Notwithstanding, he lived to see the completion of his principal work—the new Sessions House in the City of London. Mr. Graham suggested as a mark of their esteem and respect that it would be well if they had an assortment of Mr. Mountford's drawings in that room one evening during the session. Their late colleague was a man of considerable individuality, which was shown very much in his works. He was very keen on the subject of strict uniformity, and what might be called the common-sense view of architecture—*i.e.*, soundness of construction in every detail, which was apparent in all his buildings. Mr. Graham concluded by formally moving that a vote of condolence be sent to the relatives of the deceased, expressing the sincere appreciation of the members of the Institute of his works, and of his merits and career as an architect.

Professor Beresford Pite said the death of Mr. Mountford was a very serious loss to the Institute and to the art of architecture, and also to the large number of personal friends he made within the ranks of the Institute. He (the speaker) and his brother could claim probably to be the oldest friends of the deceased in the profession, because Mr. Mountford was an articled pupil of their father, and their friendship extended a little beyond that period. All those who had tested the friendship of the deceased knew that nothing would ever happen to vary the warmth of affection which everyone experienced who came to be his friend. His career was a very remarkable one. He was a man with exceedingly few connexions—a man who had to launch into life to seek success unaided by the many auxiliaries which so often assisted an architect. For some years after he completed his educational course he had very little work to do, and told him (the speaker) at one time that he contemplated taking up quantity surveying. Steady perseverance in competitions gradually brought him to the point of achieving success almost as a habit, and when success began to fall on him it fell frequently to his competitive designs. His first success was a cottage hospital at Stratford-on-Avon, which was not a very important commission; but the success he gained in Sheffield about 1888 was a very considerable one. A difficult problem had to be faced in the planning of the bulding, and Mr. Mountford's design showed that he had what they must describe as the commonplace view of a difficult problem. He had the extraordinary faculty of reducing a problem which appeared to be difficult to commonplace simplicity. His absence of affectation and simple directness was expressed strictly in his designs, which had nothing about them which did not rise perfectly naturally. His personality could be clearly seen in his designs. Later in life he attempted more ambitious schemes with some amount of success, and there was always traceable in his work an enthusiastic love for the art of architecture—they always felt that the man enjoyed it. Few men enjoyed more bringing in the painter and the sculptor to work with him. He always felt that he was exercising the best influence he could upon the whole art of architecture for the benefit of his clients in this way, and that was shown markedly in his great building in the City, where there had been a lavish and glorious use of colour decoration and of sculpture which they all hoped would be the precursor of similar combination in great buildings. He had sat with Mr. Mountford on the Council of that Institute for many years, and there was no one whose genial humorous twinkle, whose clear, blunt English view of a difficulty could be relied upon so thoroughly. The view he took of professional conduct and of the relation of one professional man to another was always one upon which he acted. It was a very high view indeed, and no one ever had any doubt as to the line Mr. Mountford would take in circumstances of difficulty. His work without doubt would mark his generation.

Mr. Searles-Wood said he had worked with the deceased as a colleague and found him wonderfully loyal. He was a sportsman in the best sense of the word. He played the game in professional life as a true sportsman and never did a thing to be ashamed of.

The Chairman remarked that he saw the deceased for the last time in the great hall of the Sessions House, and it was distressing to see how ill he looked. There was one satisfaction, however, in that one saw him in the midst of his latest triumph, because he (the speaker) felt that the upper hall of the Sessions House was really a very noble room. The decoration, and especially that at the end of the room, which was entirely due to the selection of Mr. Mountford, showed how very highly he considered the sister arts of painting and sculpture. The painting in that room was a monument to Mr. Mountford's memory as showing that he could select the proper men to do it. There was no doubt that the latest work was the greatest work of their deceased colleague.

The vote was passed in silence.

*Foundations: The Use of Divers and the Grouting Machine.*

Mr. Francis Fox, M.Inst.C.E., read a paper, which was illustrated with lantern slides, on this subject. The following is an abstract:—

"The author referred to the country's wealth in cathedrals, abbeys, churches, and similar monuments bequeathed to us by our ancestors, and to the obligation which rested upon us to preserve them for the use and delight of future generations. In effecting this, a system should be adopted that will not attract attention. The characteristics and features, the old stones with their cracks and deformations, with their weather-worn arrises and surfaces, and even the very moss, should if possible be preserved. Only stone that has perished should be replaced by new; walls that are cracked, or out of the upright, should be secured without the constituent parts being removed or renovated.

His object was to call attention to a method of repairing old walls at a minimum of cost, and with a maximum of strength. The ordinary method of pointing up with mortar a crack in a wall in no degree remedies the injury; the crack remains a crack, and its tendency to widen is by no means lessened. We had not the necessary appliances for "grouting up" until the late James Greathead invented the grouting machine for use in the construction of deep tunnels or the London tube railways. "Grout" consists of a mixture of cement, sand, and water; and when this is poured like cream into the cavities of a wall, the work is called "grouted up." Instances were cited where timely "grouting" had saved at trifling expense large railway bridges constructed to carry the heaviest express locomotives travelling at high speeds.

The grouting machine consists of an iron receiver or reservoir into which, by means of pumps, air can be forced under any pressure up to 100 lb. to the inch. This receiver is connected by a flexible tube to another portion of the apparatus called the "grouting pan," which is, in fact, a churn furnished with a handle and spindle to which are attached arms or beaters. The proper proportions of cement and water, and in certain cases sand, are then placed inside, the lid screwed down, and the contents churned up into the consistency of cream. This is now ready to be blown into the crack, the mouth of which on either side of the wall has meanwhile been clayed up to prevent the grout from escaping. The compressed air is then admitted to the grouting pan, and so soon as the necessary valve is opened the contents are discharged into the wall. All the loose particles of stone and the opposite sides of the crack are thus cemented together. The expense of grouting scarcely approaches one-fiftieth, or even one-hundredth part of the cost of pulling down and rebuilding.

The author described the application of the grouting machine to one of the ancient towers of the city of Chester, which was cracked from top to bottom and the various parts moving in opposite directions. The tower was first shored up to prevent collapse. The grouting machine was then applied, commencing at the base and gradually working upwards. By this means the cracks were filled with cement, and the walls turned into monoliths; all the bulging portions, the old stones, and worn surface, were left untouched, thus preserving the artistic and archæological interests. Then the foundations were examined, strengthened, and underpinned. Several years had elapsed, and new lines of railway had been in constant use, but no further cracks or movement had occurred. Telford's Bridge over the Dee showed serious cracks which had been satisfactorily treated by the grouting machine.

One of the most interesting applications of the grouting machine is that being carried out under the supervision of the author of the Paper at Winchester Cathedral. The architects, Mr. T. G. Jackson, R.A., and the late Mr. J. B. Colson, had found very serious subsidence in various parts, that in the presbytery amounting to nearly 2 ft. 6 in. The outer walls and buttresses had gone seriously out of the perpendicular, while the beautiful groined arches were distorted in form and disintegrated in character, and alarm had been caused by the fall of some stone from the roof. The author described the results of the investigations as to the cause of the mischief. The foundations of the building were found to rest upon logs of beechwood, some of them partly decayed, laid upon chalky clay 6 ft. in depth, beneath which was a bed of peat 8 ft. 6 in. deep, and below that gravel and flints overlying the chalk The pits sunk to get access to the

foundations quickly filled with water from the adjacent river, and the work of making good the foundations had to be done in the first place by divers. These pits are absolutely dark owing to the water being thick with peat, and no artificial light is possible; consequently the whole of the work is done not by sight, but by feeling. So soon as the peat is excavated the bottom is covered over with bags filled with concrete, carefully and tightly trodden in all round; these are then slit open and another layer of bags placed on the top. These again are ripped up, and so on for four courses in all. All the chinks and crannies between the bags are filled by hand with cement concrete lowered down in buckets. This mass becomes practically a solid rock and seals down the flood of water from the gravel, enabling the excavation to be pumped dry. Concreting is then continued, either in bulk or in block, until a considerable height is attained, and upon this blocks of concrete or brick in cement are carried up and tightly pinned to the underside of the old masonry constituting the original foundations of the cathedral. When all these excavations or pits are completed, the walls of the presbytery will be practically standing on a bed of rock, instead of on compressible peat. It has been ascertained that almost the entire cathedral stands on peat, which must be excavated. The south transept is over 4 ft. out of the perpendicular, and cracks of the gravest character are found in all directions. The most serious fact is that the cathedral is sinking, owing to the further compression of the peat in those places whence it has not yet been removed. Tests applied show that movement is still taking place, except in those parts which have been underpinned. The author expressed the opinion that the cathedral is doomed, unless it is underpinned without delay.

Details were given of the employment of the grouting machine at the old Saxon church of Corhampton, near Bishop's Waltham. There were cracks in the building wide enough for a man's head to enter. The mortar of the walls had perished, and the ivy had penetrated the building in every direction. It was unsafe to examine the foundations for fear of bringing down the whole structure; consequently the grouting machine was applied all over the building. The walls were then underpinned, and the entire building saved. No trace of the cracks is now visible, and the walls are perfectly sound.

Holy Trinity Church, Hull—a XIVth century building—is the latest instance of the satisfactory application of the grouting machine. Considerable cracks had occurred in arches and piers, and masonry had fallen. The nave piers were 6 to 7 in. out of plumb, and the joints of shafts had opened on one side and crushed on the other. Investigation showed that the foundations were built on a timber raft of horizontal oak baulks crossing each other at right angles. The upper layer had rotted, and the lower layer was decaying. The masonry overlying this timber was cracked and flaked in all directions, and most seriously injured. The author gave a detailed description of the means adopted for saving the building, the first step being to set the grouting machine freely to work pumping or forcing cement into every cavity and crevice, and filling up the voids left by the decayed timber. To-day each pier stands on 624 square feet of solid concrete, instead of on the old defective foundations.

Another purpose served by the grouting system is the preservation of the old road bridges which form such picturesque features in the landscape. Owing to increased weight and speed of traffic many of these bridges have had to be replaced by unattractive and more costly structures. By means of the grouting machine, however, they can be saved for a fifth to a tenth part of the cost of new ones, and can be made safe and strong enough to last another five hundred years. The author cited an instance of an old bridge in Westmorland, which would have had to be destroyed and rebuilt, but which was made perfectly sound by the grouting machine at a cost of 50*l*. The machine is playing an important part in the preservation of the celebrated "Auld Brig o' Ayr."

The author's opinion, based on long experience, is that the grouting machine, in the hands of a practical man who knows how to employ it, is of unmixed advantage, and that no valid objection exists against its wholesale adoption."

Anticipating a question in the course of his paper as to the swelling of cement, Mr. Fox urged his hearers to be specially careful in the selection of their cement, and warned them to be chary of using Belgium cement.

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Mr. Searles-Wood proposed a vote of thanks to the reader of the paper, and said that this was a subject in which architects were extremely interested, because if they did not have good foundations their buildings could not stand. With regard to the question of bad cement, they as an Institute were endeavouring to guard against that in connexion with the standardisation of cement, and their solution of the difficulty was that all cement should be delivered in sealed bags, with the name of the maker on the seal. At the present time they had no possible check upon the origin of the cement. They could go to a works and see a train being loaded up, and find as many as twenty different names on the sacks which were being sent out from the particular factory, but if the place of origin was properly fixed on the seal of a bag they could identify the material they were using. They were endeavouring to get this done through the Chamber of Commerce, as they could not persuade the Standardisation Committee to take it up. That Committee were nearly all engineers, and used cement in such very large quantities that they did not realise the difficulty of architects who used it in very much smaller quantities.

Professor Beresford Pite said the paper had been important if only for the extraordinary interest Winchester Cathedral had for every architect in England. He would like to suggest what appeared to be to him the secret of the usefulness of the grouting machine. He imagined that the Saxons took the best row of field-stones they could find and laid them on the line of their foundations on both faces of the wall, and the interior of the wall was a matter of indifference to them. Their first difficulty with the structure of the wall would be the turning of the angle, and more or less dressed stone was worked on the angle. When they came to a pier they found the same thing, and in connexion with the angle they got the well-known projection which gave them mouldings. What had been described to them that night with regard to Winchester was the same story as that at Peterborough fifteen years ago, and of the central tower at Chichester, of which they were told by Gilbert Scott that the stuff was falling out of a hole in the pier like water out of a bucket. It was simply the drying up of the over-grouted rubble inside the pier. It was perfectly obvious that after 600 or 700 years change must affect the walls from one face to the other, and so in every mediæval building right down to the end of the XVth century they would if they looked find abundant opportunity for a display of the virtues of Mr. Fox's pet machine. The interiors of the walls were in every case hungry receptacles for liquid cement. Experience might show that there may be risks and dangers connected with it, but he was inclined to think they were best left for the inventors of the machine to deal with. With regard to the vaults of Winchester, he knew them intimately although he had not ventured near the cathedral since it had become a matter of controversy. They were the most interesting set of vaults in England. At Winchester they saw the leading example of the cross Norman vault built of rubble only—he meant the vaults across the transepts. They were of rubble, and there was not a dressed stone in them. They were semicircular and the intersection was elliptical. They never had any shape. It was that accidental intersection of the true semicircular plan at right angles which produced the ellipse which the Normans did not understand. He did not think a true elliptical arch was ever built in England in the Middle Ages, and that was a point of the very greatest weakness. There was no bond and no structural support in the rubble elliptical intersection which led to the use of a semicircular arch of dressed stone to carry the weak angle. From that time until they got to the suspended tracery of Henry VII. chapel in London the whole strength of the mediæval vault was in the dressed stone rib. In all cases at Winchester it was the rib which was out of shape, and he must confess that he had sympathetic feeling for those who, as shown by some of the photographs, had in days gone by tried to deal with this problem. If they began to take out XIIIth and XIVth century vaulting and build it up to its true shape they began to disturb the XVth century work hung upon it. When they had a magnificent superstructure, as at Winchester, the risks connected with altering the *status quo* were very considerable. If Portland cement was allowable to be applied to a mediæval building why should not any form of suspension or strength applied to the back of these old ribs be a logical means of dealing with an age-long deformity—a deformity which had built upon it exceedingly beautiful work. That was the problem at Winchester, and he suggested if the researches of modern science were justifiable for application in the basement they were equally justifiable for the maintenance of these vault ribs.

Canon Rawnsley hoped the paper would reach a wide public, because in the Lake Country and in Cumberland and Westmoreland they were deeply interested in preserving one of the most important features of their valley roads—the beautiful bridges of the XVth, XVIth and XVIIth centuries. They were almost wholly additions to the old pack-horse roads, and the beautiful curves had been preserved from the earliest times. They felt with Mr. Fox that the danger was very great of letting these bridges be put into the hands of people who did not know the history of the country or cared very much about the colour of the country. They found a great temptation to import the easily-worked red sandstone, for instance, into their neighbourhood from other parts, which were entirely incongruous in colour to the beautiful volcanic ash of their hills. That sort of thing happened in other parts of England, and they urged that bridges of native stone should be preserved as being in harmony with the general colour of the country. A great deal of poetry was absolutely taken away if they allowed outsiders to bring in another country's make of bridge into their midst, and they believed that ratepayers, when they understood that the bridges built of the stone of the district could be repaired at a comparatively small cost, would be inclined to pause before allowing motorists to influence them in the direction of substituting other bridges. He emphasised strongly that the idea of looking upon the old bridges as part of the poetry and history of the past throughout the whole of the country should be considered, and that they should all strive to hand on to their children's children what Ruskin called the "great entail of beauty which has been left us."

Mr. Hubbard said he considered Professor Pite's point a perfectly good one with the matter of the vaulting, and that there was no necessity, as it were, to arrange the vaulting so that it should have its original

contour. By the application of this injection of cement the building became a monolith, and the correct outline or contour of the vaulting did not very much matter then.

Mr. Max Clarke, referring to the beautiful illustrations which had been exhibited, pointed out that one showed some transverse beams underneath the foundations of Winchester Cathedral. When he was there eighteen months ago Mr. Colson told him there were no transverse beams, but that they were all laid parallel under the walls. Mr. Fox had referred to a concrete floor being a failure owing to the cement, but he was joining issue with a large number of people on this point. He thought in the great majority of cases engineers and architects had made rather a mistake in attributing failures to the cement, and that it was more than probable the large proportion of failures were due to the aggregate. Consequently, he would like to know what the aggregate was in the case referred to.

Mr. Fox said he could not give the aggregate which Mr. Max Clarke asked for, but he knew they had taken the concrete out of the floor and exposed it to heat and got the chemical action of the cement, and it was swelling. They knew that it was what was called natural cement, and he advised them not to use it. The beams were generally transverse and not longitudinal, but in some few instances they were both ways. As to the ribs he was sorry that Mr. Jackson was not there to answer for himself, for it was a matter over which he had control. All he could say was that when the rib was actually crushed it was not a question of hanging it up with beams but the crushed rib had to be removed, and he thought Mr. Jackson had done wisely.

The Chairman said that apparently the aim of Mr. Fox's life was to turn the rotten walls of their cathedrals into sound ones, and the work he was doing in that direction at Winchester was not only interesting but of the utmost value. As to bridges, he thought the Institute could take some credit for using their influence towards saving some interesting bridges in the country.

The vote of thanks to Mr. Fox was carried.

The Chairman announced that the next meeting would be held on Monday, March 2, for the election of members, and would be preceded by a special meeting for the election of the Royal Gold Medalist.

## ROYAL ACADEMY LECTURES ON ARCHITECTURE.

PROFESSOR BLOMFIELD, A.R.A., commenced on Monday last a course of four lectures to the Royal Academy students on "The Grand Manner in Architecture." What had been called the "grand manner" in art and literature had been regarded for some time with contempt, yet architects continued to find in it much that was inspiring. What lay behind the "grand manner" was the general principle that the greater efforts in architecture are obtained through scale, orderly distribution, and a certain unpersonal simplicity of treatment, not through intricacy of detail. Two hundred years ago there would have been no such problem; it would never have occurred to Blondel that it was necessary to urge his students to aim at largeness of thought or a noble manner of expression; they would have taken this for granted, being saturated with the French tradition of classical design. We had lost our artistic traditions in the expansion of scientific thought and commercial enterprise; we had to recover intellectual standpoints which had now dropped into oblivion; the task was difficult but not impossible, since architecture was a very old and slow-moving art.

In the ancient world, the individual was lost in the multitude, and a colossal and sublime intensity of purpose gathered shape, and stamped their art with a splendid and monumental simplicity. To get to this point of view they must divest themselves of modern associations, and conceive of the forms of ancient architecture as a link only in a vast sequence. The temples of Egypt could only be understood from this point of view. To the Egyptian builders their plan and construction was inevitable. The first lesson to be learned from such works was, the effect to be obtained by very simple elements of design, handled on a great scale. Referring to the plan of Karnak, Professor Blomfield drew attention to the immense effect of scale and vista in such a design, attained by the simplest architectural methods—column and lintel, symmetry of plan, and walls with the expression of unchanging power. It was astonishing that this type, as shown in the late temple of Edfou, should have persisted through some 5,000 years practically unaltered, even under the alien rule of the Ptolemys. This was not only because it was consecrated by the religion of the State: it was an expression of temperament—an instinct for the grand manner. It was, he thought, incorrect to say that the Semitic races had the sense for what is great and the Aryan races alone have the sense of the beautiful. Great size, or the power of producing the effect of great size, was one of the essential qualities of architecture; and in this monumental simplicity, this reliance on great scale and the cumulative effect of a series of buildings set in an ordered plane, we found one of the elements of the grand manner. In Egyptian architecture the nature of the land offered no obstacles to the full development of symmetry in plan. In the rocky and diversified land of Greece the influence was different. The versatility of Greek architecture was especially displayed in the laying out of the Akropolis under Pericles, which the lecturer described in detail, going into the probable reasons for the placing of the different buildings in relation to each other. It was not to be argued, from the unsymmetrical placing of these buildings, in the highest period of Greek art, that symmetrical planning is a sign of decadence. It might rather be argued that the Greeks had not yet reached it. Greece was not half so firmly fixed in a long tradition as contemporary Egypt. Other things being equal, there was an inevitable gravitation towards symmetry in the architectural mind, though it was seldom possible, in cities, to obtain absolute symmetry, and they would constantly find in architecture slight deviations made to meet local and accidental difficulties. The point of interest for the student was to see how these difficulties had been got over, or translated into great architectural achievements. Examples in Greek architecture were pointed out in which a special treatment had been adopted to meet special conditions of site. At Agrigentum a series of six temples was placed along the crest of a ridge, with flights of steps leading up from the city below; in the centre the colossal temple of Olympian Zeus, with columns 70 ft. high, and at one end, over a precipice, the temple of Hera. The Sicilian architects realised the effect to be got by the contrast of the horizontal lines of the buildings with the vertical fall of the rocks, and of their monumental simplicity with jagged outlines of the ground. The feeling for monumental effect was evident in the mighty Doric of the temples at Selinus; a Doric very different from what we used in vernacular practice; in one of the temples the columns were only 5 diameters high, in another 4½; and instead of the irrational entablatures to be sometimes seen, with the architrave a mere slip, they found the architrave deeper than the frieze and both of them deeper than the cornice; the architrave being still regarded as what it really was, a lintel, visibly adequate for its work. All the details of these temples aimed at giving the effect of building as solid and eternal as the rock itself. Here we reached the common ground of all architecture, the power of conceiving an idea organically, as a whole, thought out and realised in all its parts; that large look-out on a problem which he had suggested as the true interpretation of the grand manner.

After again urging that great scale must always be one of the principal weapons of architecture, though also presenting its own difficulties, the lecturer described the temple of Zeus at Selinus, as almost rediscovered by the researches of Hittorf in the last century, and concluded by saying that he had called their attention to these monuments of Egypt and ancient Greece in order to show that the great qualities of architecture were its permanent qualities: that architecture preserved its place in the memory of mankind in so far as it was based on certain principles independent of styles, and which appealed in their larger aspects to humanity now, as they did thousands of years ago. In Egypt those principles showed themselves in an effort after vast scale and eternal stability; in Greece and its colonies in a monumental sense in buildings, and a large conception of their setting. In both he found that the designers had worked to an ideal which guided their hand from the first beginning to the last detail of ornament; that is, we found in them that unity of art, in the sense of its harmony as an organic whole, which was the first and greatest lesson of classical architecture.

## SOCIETY FOR THE PROMOTION OF HELLENIC STUDIES.

PROFESSOR PERCY GARDNER presided on Tuesday evening at the Rooms of the Society of Antiquities, Burlington House, over the second general meeting of the Society for the Promotion of Hellenic Studies.

Mr. Cecil Smith, of the British Museum, showed photographs of some recent additions to the Parthenon Frieze in the Elgin room. They had been endeavouring to make their collection of the Parthenon sculptures as complete as possible for the purposes of study, and their object was to supplement the series of originals with casts of fragments wherever they were to be found. The Greek Government had had casts made of certain fragments in the Acropolis Museum, and now the British Museum was in possession of a collection in which the sculptures of the Parthenon might be studied for the first time with reasonable completeness. The only series which was still wanting consisted of those metopes now in position on the building, which because of their fragmentary character chiefly had never been moulded. A promise had been made, however, that casts of these should be made and sent on as opportunity occurred. He might add all that the casts for which it had been impossible to assign a true position were now arranged in a room close by the Elgin room, where they were available at any time for students.

### *The Theatron at Olympia.*

Mr. Louis Dyer, in the course of a paper on "The Theatron at Olympia," said that once only, seven years after the battle of Leuctra, was there actual fighting within the sacred precincts, the Altis, of Olympia, viz., 364 B.C. From time immemorial before and since that year the inhabitants of Elis, as Polybius phrased it 200 years later, enjoyed on account of the Olympian games so unique and privileged a dispensation that Olympia and the whole of the Elis was a holy land, and feared no ravages of war. In his account of the one and only battle of Olympia, Xenophon, writing in 371 B.C., alluded to the theatron by way of explaining just where the fighting took place. Although there existed no other mention whatever of a theatron at Olympia, Xenophon's unrivalled familiarity with the site fully justified the expectation that when Olympia should be excavated, remains of a theatre similar to those elsewhere in Greece, would appear; but after the most thorough search no vestiges of such a theatre had anywhere appeared. Eleusis, hardly second in importance to Olympia, offered a similar and even more perplexing puzzle, for although inscriptions found on that site spoke of a theatron, no traces of any theatre had been

discovered, and at Eleusis, as at Olympia, there was no site adjoining the precinct where such a theatre might plausibly be located. Not only was there at Olympia no stone structure of semi-circular tiers of seats built at any time, early or late, but there was nothing there until about 450 B.C. that could be called either a running ground or a full-fledged stadium. The Olympian stadium in the final and complete shape, which alone deserved that name, dated from Macedonian times after Chaeroneia. The spectators there apparently witnessed athletic events, standing the while on slopes, more or less grassy, at a convenient gradient, and running parallel to its sides and ends. Between the years 450 B.C. and 338 B.C there was—(1) The running ground for actual contests; and (2) a field for spectators south of it where onlookers could stand. The field had an area of an acre and a half, and, like the running ground north of it, was not far from level. Dr. Borrmann had estimated that about 20,000 spectators could view from these various fields adjacent the athletic events of this very primitive arena. Primitive although it was, it was the only arena known to Xenophon. Discussing the question as to where the spectators stood prior to 450 B.C., Mr. Dyer said that if they went back to the prehistoric time, when there was no building on the Altis, the games, if there were any, probably took place north of the Altar on the site afterwards covered by the Heraeum, and were viewed from the south-western foot spur of Mount Cronius, which in the VIIth century A.D., overwhelmed the Heraeum. When the Heraeum and the Shrine of Hestia just north of it were newly built, the altar of prehistoric observance, being crowded in between the new Heraeum and the old world Barrow of Pelops, fell into neglect, and the great Ash Altar of daily sacrifice, located just east of the barrow, usurped its more ancient importance. The building of the Heraeum crowded spectators and athletes alike to the east. The dedication of Olympian treasuries ceased at the end of the first quarter of the Vth century B.C., because the Dromos and the Painted Colonnade were then projected. Meanwhile the ancient arena in front of the treasuries continued in use, and certainly it was used at the great Pan-Hellenic celebration of the Olympia which took place in 476 B.C. In was from one of the six odes of Pindar that it could be derived with absolute certainty that in 476 B.C. athletic events were fought out in the area east of the great Ash Altar of Zeus, a full view of which was at the time commanded only from the terrace of the treasuries. In conclusion, Mr. Dyer joined issue with Professor Frazer's view that a stone semi-circular fabric of the usual kind must have been before Xenophon's eye. That being insisted upon, he for one should boldly coin the vocable *spectatorium* to designate the place at Olympia where spectators from time immemorial had congregated, and where they actually were congregated at the time of Xenophon's narrative.

Mr. E. Norman Gardiner said he had arrived at the same conclusion as Mr. Dyer by different reasonings. In 364 B.C. it was certain that the races took place near the altar, and they were justified in taking Pindar's words as literally true. Even in the Vth century the arrangements for the contests were of the simplest. At Delphi in the IVth century B.C., the roads had to be weeded. There was no doubt that the concentration of all interest around the altar afforded the simplest explanation of three facts—(1) Of the crowding of the Treasuries; (2) of the building of the rows of steps below the treasuries partly as a retaining wall and partly as a grand stand; and (3) the building of the colonnade by the Eleans as an extension of this stand. It might be said that the boundaries of the altis would prevent the races being run, but the evidence they had was that the boundaries of the precinct were originally natural boundaries, and this afforded no objection to the view that the games took place round about the altar in the centre of the altis.

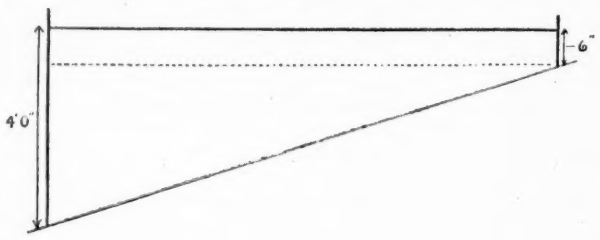
The Chairman remarked that he had not the least doubt that the readers of the papers were correct in their identification of the spot where the games took place and where the spectators stood.

## ON THE PREVALENCE OF DRY ROT.

FROM A CORRESPONDENT.

IN a good many of the more modern houses deterioration is proceeding at a rather rapid rate owing to the presence of dry rot in the timber forming the ground floor of modern dwelling-houses, and it is worth while examining into one or two points of construction in order to ascertain what is the most likely cause of this complaint in ordinary buildings.

The writer has met not a few cases where




the mistaken idea prevailed that if sufficient room was left between the bottom of the floor joists and the ground on which the building was erected sufficient precaution had been taken in order to prevent dry rot. While this might have been sufficient if the ground had been covered with concrete the results have evidently shown that in the ordinary method of building serious trouble is likely to arise unless proper arrangements are made.

A typical example occurred in the case of a house situated in a terrace on a steep gradient; the usual number of air vents were put under the level of the ground floor, the builder evidently trusting to the idea that there was ample space between the ground and the joists, imagining that it would be to the advantage of the building. As events have turned out, however, this large air chamber under the flooring has proved to be a disadvantage, and it would have been better if the builder had filled up to the dotted line in the illustration with made ground, even although this might have been conducive to the formation of fungus. The reason for this would be that the number and size of the ventilators placed in the walls would have been sufficient in the case of the small air space to have produced a current of air, whereas, as the building was really erected, there was such a large chamber of air enclosed with very small openings that the air became stagnant, dry rot set in, and a large quantity of the flooring had to be removed.

It is the contention of several men who have had a fairly extensive experience of dwelling-house building, that even a space of 12 in. between the floor joists and the earth, which is the distance demanded by many of the local by-laws, is too much space when only the usual 9 in. by 9 in. vents are put in. Where these by-laws are enforced a greater number or a larger size of vents should be allowed, for it is extremely rare to find dry rot setting in where a good current of air is passing through and round about the woodwork.

Another interesting case which came under the writer's notice, and which points to another possible case of dry rot, was that of a building in which a conservatory was placed at the end of a billiard-room. The pipe for heating the conservatory was so arranged as to pass right through the space underneath the billiard-room flooring, and the result was that the warmth of the pipes drew moisture out of the earth, and the resulting damp produced dry rot in the billiard-room flooring. It should, therefore, be carefully observed that any condition of pipes, stoves, or other arrangements producing large differences of temperature, should be avoided in contiguity to a basement floor, inasmuch as it is essential that the contained moisture of the earth should be kept away from the woodwork of the building.

There are cases occurring in practice where, owing to the conditions of the structure, even the first floor, although above the basement, is not above the ground level outside. In this case it has been observed that the rot has worked its way right along the joist, beginning at the end of the timber inset into the wall. The cause of this was that the joists were built straight into the wall instead of having proper means of ventilation all round their ends. In such a case as this, if the dry rot has not proceeded very far, an antiseptic, such as carbolineium avenarius, is washed over it, but it is very difficult to tell whether such a preservative is entirely deterrent in its action. It often pays in the long run to pull up the floor, scrape the walls, ground joists, etc., and wash the whole surface over with hot lime.

The chief points then to be remembered in order to prevent dry rot are the advisability of securing correct circulation of fresh dry air, and of constructing the building with sufficient vents to secure the same, and also, in the case of house property, to see that these ventilators are not choked in any way by surrounding soil, as would occur if they were placed so near to the level of the garden that the soil in being dug up would choke the ventilator.

## THE ROYAL SANITARY INSTITUTE:

### RIVERS POLLUTION.

A MEETING of the Royal Sanitary Institute was held on the 12th inst. in the Parkes Museum, Margaret-street, W., when a discussion took place on "Rivers Pollution, with Special Reference to the Board Proposed by the Royal Commission," Sir Alexander R. Binnie, M.Inst.C.E., Vice-President, presiding.

The discussion was opened by Sir William Ramsay, K.C.B., LL.D., D.Sc., F.R.S., who said that in 1898, on May 7, the present Commission was appointed. It had published four reports, and a fifth was on the stocks and would soon be issued. Since the earlier Commission sat bacterial methods of an artificial nature had been introduced, and the whole complexion of the purification of sewage was changed. This was largely due to Mr. Warington's researches on nitrification and the development of Pasteur's ideas of the enormous influence on health and disease of bacteria. The whole question of sewage disposal had, in his opinion, grown beyond the powers of a Royal Commission, that it was intimately connected with our water supply, and that the Government should create a permanent Board.

There could be no finality in investigations of the kind which they had undertaken. To parody Newton, we had been gleaning a few algæ from the surface of sewage-tanks, knowing the wealth of bacteria still uninvestigated which the tanks contained. It was true we had ascertained certain general truths—that sewage contained bacteria, sometimes harmless, sometimes harmful; that on exposure to air some of these developed and consumed the organic matter, converting it into carbon dioxide, water, nitrites and nitrates; that if excluded from air bacteria, probably of a different kind, certainly of different action, alter the organic matter, producing marsh-gas and carbon dioxide, and changing the nature of the complicated matter of the sewage. It was probable that the sewage matter was largely attacked by creatures of higher function, worms and the

like, before it was finally attacked by bacteria, but of this we knew practically nothing. We had every reason to believe that persistent, continuous work on the chemical and biological aspects of the sewage problem would yield far-reaching results. For this reason, if for no other, a permanent laboratory staff should be formed.

There were at present certain authorities which deal with certain rivers. It was absolutely necessary that an authority should have jurisdiction over the whole course of a river. Who was to say when pollution was first introduced? What was the use of a local authority whose jurisdiction lay well down a stream, purifying its sewage, to turn it into a river much more foul than the purified sewage effluent? We must have more Rivers Boards. An estimate would show that some fifteen must be created. The functions of these Boards, however, should not cease when the rivers under their charge were fairly pure—they should have control of the local water supply. It was they who should know the risks of contamination, and should have means at their disposal to prevent it. Such local Rivers Boards, however, must necessarily be composed of local men. Many of these must of necessity be manufacturers, who themselves produce trade effluents. It might happen that the drains, though capable of disposing of domestic sewage, were not large enough to deal with trade effluents. The manufacturer had no facilities for purifying his effluent; besides, any purification which he might effect would not be nearly so complete as if his effluent were to be treated by one of the bacterial methods now common. What was to be done? Who was to pay for the extra sewers? If decided on by the local Rivers Board the manufacturer might be inclined to charge them with partiality; or it might happen that the interest of those on the Board was to keep matters *in statu quo*, and the river runs on unpurified. Such were the problems which face Rivers Boards. Those which exist were, on the whole, very efficient, and had done much to improve their water-courses.

For the reasons given (continuous investigations as regards pure effluent and pure water; control over Rivers Boards as to the standard of their work; and judicial functions in settling disputes out of court) the Commission had recommended the creation of a central authority for the whole of the kingdom, with its office and laboratories in London.

Its functions would be:

1. To continue the investigation of all processes for disposing of sewage, and to report from time to time.

2. To pay visits (through inspectors) to the various local Rivers Boards and help them with advice. Indeed, the most thorough friendly co-operation should exist between the Rivers Boards and the central authority.

3. To act as a court of appeal, so that in case of dispute between a local authority and a local Rivers Board the decision of the central authority, after due investigation by its own experts, with evidence from both sides, should be final, and should carry with it the weight of a decision by a court of law.

Two of the most important duties which would fall to the share of the central authority, both of which should be at once undertaken, were:

*a*. The central authority should inquire at once, and should advise the Government as to the particular Rivers Boards which must be created, so as to cover the whole country.

*b*. The central authority should prepare a plan whereby the water supply of the whole country and the local demands should be mapped out.

The population of our towns was ever increasing. The water supply, ample at present, would be too small in a few years unless it was properly conserved.

He would suppose that the East of England towns found that local wells and rivers were insufficient to supply them, and that they proposed to derive a supply from Wales. This, it must be remembered, was an exaggerated and purely supposititious case, merely intended for purposes of illustration. They acquired the right to draw water from some Welsh lake. Suppose, for the sake of argument, that the town of Birmingham, say, did not oppose; then, in twenty years' time, when Birmingham had grown still larger, its water supply becomes inadequate. It was on the direct line of the East Anglian-Welsh pipes; but it could avail itself of them. It was much more likely that Birmingham would oppose, and that costly law suits would be the result. It was so obviously to the public advantage to have a complete survey of the water supplies available considered in relation to the needs of the various localities that the case hardly admitted of argument. An expert in such matters (rainfall, etc.) should form part of the staff of the central authority, whose business it should be to prepare such a survey, with the help of his colleagues and with information supplied by the Rivers Boards. Such a central authority would not involve the country in much expense—at a liberal estimate 10,000*l*. a year would suffice at present, and (so far as can be foretold) for many years to come.

The Alkali Act had worked very successfully, and the inspectors had proved of great use, both to the public and to manufacturers. These gentlemen were not supposed to offer official advice to manufacturers, but they passed on to one manufacturer the knowledge that to dispose of such or such a nuisance so and so might be consulted. The removal of the nuisance was often accompanied by a profit to the manufacturer. He could conceive of the chemists and inspectors of the Rivers Boards fulfilling a similar function. Suppose A. wanted a scheme for sewage disposal. The inspector, knowing the local circumstances, directs A.'s attention to B.'s plan, which would be least costly and best suited to his requirements. In this manner much good would be done.

It was common knowledge that Mr. John Burns, the President of the Local Government Board, had given a very favourable reception to a deputation from the British Science Guild, who waited on him to urge the creation of a central authority. A Bill had been drafted, and it was hoped that it would become law this session.

As an addendum to his remarks Sir William gave "Excerpts from the Third Report (1903) of Royal Commission on Sewage Disposal as to the Need of Setting up a Central Authority," etc.

Dr. T. Barwise, Mr. G. J. Fowler, Mr. J. Watson, Mr. J. D. Watson, and others took part in the discussion.

## DESIGNS FOR STAINED GLASS.

THESE two illustrations for stained glass windows are the work of Mr. J. S. Vickers, of the Royal College of Art. They were exhibited last summer at the exhibition of students' work at South Kensington. Mr. Vickers' designs—especially that for the memorial window—show a fine feeling for design based upon the experience gained from careful study of old work.

## CERAMICS IN ARCHITECTURE AND DECORATION.

UNDER this title Mr. Walter Gandy, in his paper before the Auctioneers' Institute on the 12th inst., took a wider view of "Ceramics" than we are perhaps accustomed to, covering as he did not only the various fields of colour, but apparently including as ceramics the sun-dried bricks of the ancient Egyptians, the brick architecture of Northern Italy and North Germany and the Low Countries; the terra-cotta of the Italian Renaissance and the stock brick of London. Indeed not the least interesting passages in Mr. Gandy's paper were his references to and lantern slides of some of these latter:—the Certosa at Pavia; St. Mary,

*Designs for Stained Glass, by Mr. J. S. Vickers, Student of the Royal College of Art.*

Lübeck; the wonderful XIVth century castle at Marienburg, near Dantzic; the tower of Utrecht Cathedral, etc., where the essentials of good brick building, well-considered strength, cheerful solidity, and clear and definite intention are so well expressed. In sketching the historical side of his subject, the lecturer reminded his hearers of the use of "key-backed" tiles—coloured green and glazed—on the Pyramid of Sakkarah as far back as 3300 B.C., and called attention to those of a later period—about 1300 B.C.—used in the decoration of palaces built in the time of Ramesis II. These latter, of which there are pieces in the British Museum, were not, however, key-backed, but were practically a clay-enamelled *mosaic* rather than a *tile*, each piece of the design, whether of fruit, flowers, or historical subjects, being cut to shape, fired and enamelled separately before being set in the clay backing. Here, and in dealing with Persian work, Mr. Gandy scarcely seemed to draw this distinction between what would appear to be different methods of working. Excavating on the traditional site of the Tower of Babel, Sir Henry Rawlinson had found remains of the Tower of the Seven Planets, built about 600 B.C., where tiles of a different hue had been used to each story—green, blue, yellow, pink, red, black—supposed to be symbolical of the heavenly bodies. The influence of the ceramic art of Persia upon the whole Mahommedan and Western world was traced and it was shown that in our own day architects had gone for inspiration to the well-known "procession of the archers" and "frieze of lions" discovered on the site of the Palace of Darius at Shushan by M. and Madame Dieulafoy some twenty years ago and now in the Louvre. A coloured plaster-cast of the former may be seen in the South Kensington Museum. With reference to Etruria and Rome examples from the British Museum were again cited, including the portions of terra-cotta pediment, etc., of a temple at Lavinium, dating back to the VIth century B.C. Unlike the Etruscans, the Greeks confined their use of terra-cotta almost exclusively to the smaller kinds of statuary. Although the Romans built largely in brick and terra-cotta the material, though sometimes coloured, was not glazed. Mr. Gandy seemed to regret the fact that Rome had been transformed, under Nero, from brick to marble. But marble was available, and we do not see why it should not have been used. Would an exclusively terra-cotta Rome have exercised the same spell over the civilised world of to-day? Nor did we think his case for a brick and terra-cotta built London particularly convincing. He would, we feel sure, never have had, for instance, Westminster Abbey or St. Paul's Cathedral in other than stone. Indeed several of Wren's works, in which Portland stone is used in conjunction with brickwork, were referred to with evident appreciation.

After dealing with the Italian Renaissance and its influence upon pre-reformation architecture in England, the lecturer brought his subject up to the present day with particular reference to the work of Messrs. Doulton. But, with some notable exceptions, we scarcely thought the examples of modern terra-cotta buildings shown on the screen were particularly well chosen. Much modern terra-cotta work—particularly of the buff colour—is garish and vulgar to the last degree, and when, after a few years, it takes on in addition its *shabby* appearance, it is not surprising that the material should be rather out of favour. In Carrara ware, on the other hand, architects for the most part seem to be able to preserve if not invest in the material a certain dignity of its own, and many good examples of recent work in London and the provinces were shown in this material.

THE STUDENT'S COLUMN.—Our Student's Column article ("Reinforced Concrete Beam Formulæ") is again held over for want of space.

## THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. H. P. Harris, Chairman, presiding.

*Tramways: Mains.*—It was agreed that the estimate, in respect of the removal, lowering, or diversion of mains, pipes, wires, etc., necessary for the reconstruction of the existing tramways from Nine Elms-lane, *viâ* Wandsworth-road, Lavender-hill, and St. John's-hill, to East-hill, Wandsworth, for electric conduit traction, be approved.

*Prizes for Museum and Architectural Studies.*—The Education Committee reported that two prizes of the value of 15*l.*, two of 10*l.*, and two of 5*l.* have been offered this year by the Council in accordance with its usual custom for sets of carefully-executed drawings of buildings, churches, and of artistic objects in museums. Owing to the poor results obtained, the Committee concurred in the suggestion that the prizes should be varied this year, and in future they recommended that in the educational year 1908-9, one prize of 10*l.* and two prizes of 5*l.* each be offered for museum and architectural studies, and that the question of the continuance of the award of the prizes be considered in 1909. That, in lieu of two prizes of 15*l.* each, two of 10*l.* each and two of 5*l.* each, four prizes of the value of 5*l.* each be awarded, during the educational year, 1907-8, for works submitted in connexion with architectural and museum studies.

*Schools.*—The Committee reported as follows:—

Under our order of reference we have sanctioned the provision of incandescent gas-lighting at thirty-one schools at a total estimated cost of 493*l.* 10s., the improvement of the heating of four schools at a total estimated cost of 297*l.*, the execution of sanitary works at four schools at a total estimated cost of 535*l.*, and the improvement of the ventilation of one school at an estimated cost of 81*l.* Authority has been given for the erection of covered playgrounds at two schools at a total estimated cost of 293*l.*, the provision of science-rooms at three schools at a total estimated cost of 501*l.*, and the adaptation of two classrooms at one school for instruction in science and art at an estimated cost of 305*l.* We have further authorised the provision of (i.) a lavatory at a secondary school, (ii.) a covered way at a training college, and (iii.) a covered playground at a technical institute, at a total estimated cost of 257*l.* Upon reconsideration of a proposal to provide a science-room, etc., at an estimated cost of 922*l.*, it has been decided not to proceed with this work.

Tenders have been accepted for cleaning the interiors of thirty-three schools, for heating work at twenty-two schools, the enlargement of a playground, the installation of electric light at a new school, the adaptation of premises for housewifery centres in two cases, forming a hall and rediviling rooms at one school, and for other works of a minor nature. The Works Committee have undertaken repairs, alterations, etc., at divisional offices in three districts, and the fencing in or two sites. The estimated cost of all these works is 12,064*l.*

During the three months ended at Christmas, 1907, expenditure amounting to 4,663*l.* 6s. 7d. has been sanctioned in respect of various small works of maintenance, alteration, etc., of school buildings, and repairs to schools, executed by contractors or by the Works Committee. Urgent work executed by the Council's own workmen has been sanctioned to the value of 10,444*l.* 17s. 7d.; urgent heating and sanitary work valued at 1,016*l.* 11s.; hoarding and shoring work in connexion with the demolition of properties upon various sites at a cost of 425*l.* 7s.; and works of maintenance, etc., in connexion with electric lighting, etc., variations on contracts, and cleaning of schools after infectious disease, at a total cost of 1,022*l.* 5s. 11½d.

Six old schools have been selected for structural improvement in accordance with an agreement at which the Committee have arrived with the Finance Committee that 60,000*l.* a year should be allocated for the purpose of enabling six schools to be put in hand. The Committee were not satisfied that the six schools originally selected for putting in hand during 1907-8 were the most pressing, and they therefore reconsidered the matter. In the result they had given instructions for schemes for the improvement of the undermentioned six schools to be submitted during the financial year of 1907-8:—Battersea, Bolingbroke-road; Bermondsey, Laxon-street; Bethnal Green, N.E., Pritchard's-road and Teesdale-street; Hackney, C., Tottenham-road; St. Pancras, E., Aldenham-street.

The Council has approved votes for the preparation of bills of quantities, and tenders are being invited for the work at all the schools except the Bolingbroke-road school, for which a revised scheme is under consideration.

In July, 1906, the Committee considered the condition of the drains and offices of the non-provided schools which were ascertained in the course of the survey of such schools to be in an unsatisfactory condition. As a result they arrived at the conclusion that in 205 cases the drains and offices were in a condition which constituted an immediate danger to the health of the children in attendance, and the Council, on their recommendation, informed the managers that unless the sanitary arrangements passed satisfactorily the smoke and chemical tests, the Council would cease to maintain the schools as from certain dates. At 167 of these schools the managers have completed all the sanitary improvements required, and the drains and offices have satisfactorily passed the water test. In thirty-three instances the managers have effected such improvements that the drains and offices have passed satisfactorily the smoke and chemical tests, and can be regarded as temporarily satisfactory pending the completion of the whole of the Council's requirements. As regards the remaining five schools considerable sanitary work has been undertaken, which, in four cases, is nearing completion, and the remaining school is to be rebuilt.

With reference to the schools whose sanitary condition was not regarded as a source of immediate danger to the health of the children, the Committee have been in communication with the managers with a view to the Council's requirements in regard thereto being complied with as soon as possible, and, with the exception of twenty-eight schools, the whole of them have been put into a perfectly sanitary condition. In the majority of the twenty-eight cases the necessary work is being carried out, and in the remainder the work will be undertaken during the Easter holidays, 1908.

With the exception, therefore, of the sixty-six cases mentioned above, the whole of the non-provided schools in the county are now in a sound sanitary condition.

*Hainault Forest: Adaptation of Farm Buildings.*—It was agreed that the purposes of the capital estimate of 1,180*l.*, approved on February 5, 1907, in respect of the adaptation of farm buildings at Hainault Forest for refreshment and other park purposes, including the provision of water-closets and incidental expenses, be enlarged so as to include the following purposes specified in the report of the Finance Committee, viz., providing new mangers and post and rail fence as standing for horses, inclosing kitchen yard, and forming additional windows in refreshment-room.

*Theatres, etc.*—The following proposals were agreed to:—

Alterations proposed to be made at the Grand Theatre, High-street, Islington, mainly with the object of rendering the premises suitable for two performances nightly (Messrs. F. Matcham & Co.).

Arrangements in connexion with the "coal mine" and "rivers" proposed to be constructed at the London Exhibition Buildings, Earl's Court (Mr. A. O. Collard).

Arrangements in connexion with the Building Trades' Exhibition to be held at Olympia, Hammersmith (Mr. F. H. Payne).

Proposal to enlarge the auditorium and to effect certain minor alterations at the Princess Hall, Christian-street. The capacity of the hall will be increased from about 450 to 650 persons, but the exits are sufficient for 500 persons only (Mr. J. Stanley Heath).

A vacuum system of ventilation proposed to be installed in the large hall at the Queen's Hall, Langham-place (Messrs. Richard Crittall & Co.). Electrical work in connexion therewith (Mr. E. Wingfield Bowles).

Proposed arrangement of the seating at St. Mary's Hall, York-rise, Dartmouth Park (Mr. G. Ball).

Heating arrangements and a vacuum cleaner proposed to be installed at the Standard Theatre, Shoreditch High-street (Messrs. F. Matcham & Co.).

*New County Hall.*—The Establishment Committee reported as follows:—

"We have had under consideration the question of providing, for the convenience of members, a model or drawing of the selected design for the County Hall as modified by the assessors. We are advised that the estimated cost of a perspective drawing done in water-colours would be about 30*l.*, and the length of the building as seen in this drawing would be 3 ft. A precise model of the building is estimated to cost several hundred pounds. We think that a perspective drawing would be very useful, and we have therefore given instructions for one to be prepared, but we have postponed further consideration of the question of the preparation of a model until a later date, when the details of the design and plan of the new offices to be erected are before the Council."

*Motor Fire-engines.*—The Fire Brigade Committee recommended that the offer of

Merryweather & Sons, Ltd., to supply, for 1,228*l.* 7s. each, two petrol-driven motor fire-engines, and to take in part payment therefor two existing steam fire-engines in the brigade, Nos. 55 and 133, for which an allowance of 133*l.* 10s. is to be made, be accepted.

*Tramways.*—It was agreed that the supplemental estimate of expenditure on capital account of 2,000*l.*, submitted by the Finance Committee, in respect of the construction and equipment, for the underground conduit system of electric traction, of the tramways from Westminster Bridge-road, *viâ* Westminster Bridge and Victoria-embankment, to John Carpenter-street, be approved.

*Alterations, Parker-street House.*—It was agreed that the estimate of expenditure on capital account of 325*l.*, submitted by the Finance Committee, in respect of the construction of nine additional cubicles and a tool-shop at Parker-street House, be approved.

*Improvements.*—It was agreed that the estimate of expenditure on capital account of 800*l.*, submitted by the Finance Committee, in respect of the widening of Old-street at Nos. 234 and 234A, be approved.

That the estimate of expenditure on capital account of 1,527*l.*, submitted by the Finance Committee, in respect of the widening of the bridge carrying Plumstead-road over the South-Eastern and Chatham Railway in general accordance with the plan, be approved.

The Council adjourned after transacting other business.

## APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

*Lines of Frontage and Projections.*

*Kensington, South.*—Two three-story oriel windows upon the Brompton-square frontage of a building to be erected on the northern side of Brompton-road, Kensington (Messrs. Worleys & Armstrong for Mr. J. J. Wheeler).—Consent.

*Lewisham.*—A porch and two lean-to additions in front of the Holy Cross Catholic Church, Sangley-road, Catford (Rev. E. Escarguel).—Consent.

*Lewisham.*—That the application of Mr. A. R. Westworth for an extension of the periods within which the erection of five buildings on the south-eastern side of Perry-hill, Catford, was required to be commenced and completed be granted.—Consent.

*Lewisham.*—Eight buildings on the southern side of High-road, Lee, with projecting one-story shops in front (Messrs. Hatch & Hatch).—Consent.

*Strand.*—An illuminated sign at the premises of Short's, Ltd., abutting upon the footway leading from the Strand to Aldwych (Messrs. Buckley & Beach for Short's, Ltd.).—Consent.

*Wandsworth.*—That the application of Messrs. A. W. Taylor & Co., on behalf of Mr. E. A. Duff, for an extension of the periods within which the erection of buildings on the southern side of Melrose-road, Southfields, to abut also upon the eastern side of Avenue-road, was required to be commenced and completed be granted.—Consent.

*Woolwich.*—Projecting bay windows to proposed houses, Nos. 1, 4, 6, 7, 8, and 10, Beechhill-road, Eltham (Mr. J. J. Bassett for Mr. A. Cameron Corbett).—Consent.

*Fulham.*—The erection of a mission building on the western side of Wandsworth Bridge-road, Fulham, and also abutting upon the southern side of Hugon-road (Messrs. Z. King & Son for Mr. R. W. Black).—Refused.

*Islington, East.*—One-story projecting shops in front of Nos. 93 and 95, Southgate-road, Islington (Messrs. Lovegrove & Papworth for Mr. W. Hutton).—Refused.

*Marylebone, West.*—A covered way in front of No. 29, Upper Hamilton-terrace, St. John's Wood (Messrs. Mark Liell & Son for Mr. Northcote).—Refused.

*Width of Way.*

*Hampstead.*—A motor-garage building on the northern side of Church-walk, Hampstead, at less than the prescribed distance from the centre of the roadway of the street (Mr. J. D. Hunter for Mr. C. B. King).—Consent.

*Poplar.*—An addition at the rear of No. 131, West Ferry-road, Poplar, at less than the prescribed distance from the centre of the roadway of Malabar-street (Mr. E. B. Ellis for Mrs. Padwick).—Consent.

*Southwark, West.*—That the application of Mr. R. Plumbe for Messrs. J. Spicer & Sons for an extension of the periods within which the erection of a building on the south-eastern side of Redcross-street, Southwark, was required to be commenced and completed be granted.—Consent.

*Width of Way and Lines of Frontage.*

*Strand.*—The retention of an aviary at the first floor level of No. 6, St. Alban's-place, Haymarket (Mr. A. F. Jackson).—Consent.

*Hoxton.*—A one-story mission hall adjoining the Hoxton Hall, Wilks-place, Hoxton (Messrs. Lovegrove & Papworth for Mr. T. Godlee).—Refused.

*Width of Way and Space at Rear.*

*Kensington, South.*—A building on the northern side of Brompton-road, Kensington, at less than the prescribed distance from the centres of the roadways of Brompton-square and Cheval-place, with a forecourt fence at less than the prescribed distance from the centre of Brompton-square (Messrs. Worleys & Armstrong for Mr. J. J. Wheeler).—Consent.

*Line of Frontage and Space at Rear.*

*Wandsworth.*—A deviation from the plans approved for the erection of two houses on the eastern side of Balvernie-grove, Southfields, abutting upon the northern side of Smeaton-road, Southfields, Wandsworth, so far as relates to the erection of a three-story block of water-closets abutting upon Smeaton-road, an iron and concrete balcony, etc. (Mr. R. Burr for Mr. W. Byford).—Consent.

*Lines of Frontage and Construction.*

*Holborn.*—The retention of a wooden stall of a temporary character at No. 40, East-street, Holborn, abutting upon New North-street (Mr. T. Eycott).—Consent.

*Width of Way and Construction.*

*Lewisham.*—A wood and iron church of a temporary character on the western side of Longbridge-road, Lewisham (Mr. W. Harbrow for the Vicar of Lewisham and churchwardens).—Consent.

*Space at Rear.*

*Holborn.*—A modification of the provisions of Part V. of the Act so far as relates to the erection of an extension at the rear of the Kingsley Hotel, Hart-street, Bloomsbury, such extension to abut upon Little Russell-street (Mr. C. Fitzroy Doll).—Consent.

*Holborn.*—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of an addition upon a portion of the space at the rear of No. 53, Upper Bedford-place, Holborn (Mr. F. Puzey for Mrs. Leask).—Consent.

*St. George, Hanover-square.*—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of the superstructure of the Dover-street Station of the Great Northern, Piccadilly, and Brompton Railway, Dover-street, Piccadilly, with an irregular open space at the rear (Mr. D. Joseph for Messrs. Braid, Pater, & Co., Ltd.).—Consent.

*Formation of Street.*

*Lewisham.*—That the Council do consent to the application of Mr. A. R. Westworth for an extension of the time within which the roadway of a proposed street for carriage traffic to lead from Perry-hill to Castlands-road, Lewisham, was to have been clearly defined and thrown open to the public as a highway.—Consent.

*Cubical Extent.*

*Fulham.*—The retention at the premises of the London Road Car Company, Ltd., Farm-lane, Fulham, of two divisions, each exceeding in extent 250,000, but not 450,000, cubic ft., and to be used only for the purposes of a motor-omnibus garage (Messrs. Gilbert & Constanduros for the London Road Car Company, Ltd.).—Consent.

*Cubical Extent and Construction.*

*Westminster.*—The erection and construction at the Stag Brewery, Pimlico, of an iron building to be used as a "washing floor," whereby the buildings to which the "washing floor" is to be attached will be made to exceed in extent 250,000, but not 450,000, cubic ft. (Mr. M. T. Saunders for Messrs. Watney, Combe, Reid, & Co.).—Consent.

*Alteration of Building.*

*Paddington, South.*—A modification of the provisions of sect. 41 of the Act, so far as relates to the erection of a conservatory at the first floor level at the rear of Nos. 1 and 2, Queen's-gardens, and No. 22, Devonshire-terrace, Paddington, and do also allow the said premises to be united at the basement level (Mr. W. J. Gibbon for Mrs. M. H. Gibbon and Mrs. C. M. Moore).—Consent.

METROPOLITAN WATER BOARD.—At the fortnightly sitting of the Metropolitan Water Board on Friday last week, Messrs. Widnell & Trollope were authorised to take out the quantities in respect of the construction of the proposed reservoir at Island Barn, estimated to cost 200,000*l.*

# Architectural Societies.

MANCHESTER SOCIETY OF ARCHITECTS.—At a meeting of the Manchester Society of Architects on February 13, with Mr. Paul Ogden (President) in the chair, Professor Reilly (Roscoe Professor of Art at the University of Liverpool) read a paper on "The Grand Manner in Architecture." Taking Sir Joshua Reynolds's fourth discourse on painting as the basis of his paper, Professor Reilly showed that the generalisations and principles of art expounded therein apply at the present time more particularly to architecture than to painting. The "Great Style" is Sir Joshua's equivalent for the term "The Grand Manner," the word style having been debased into a name for a catalogue of the minutiæ by which the building technique of one period is distinguished from that of another—so that the term "Grand Manner" does not necessarily mean a restriction to any particular so-called architectural style. This grand manner, then, has disappeared from painting, which since Sir Joshua's day has had new fields opened to it; it has been born again into a new world with Manet, into a new atmosphere with Whistler—but it has parted company with architecture. The three main principles which may be translated from Sir Joshua's language of painting into that of architecture are—unity, largeness of scale, and restraint. Taking these in order, the lecturer showed what is meant by true architectural unity. A good building viewed as a whole cannot be separated into two ideas, one of plan and the other of elevation; they must each be a natural outcome of the other. A plan is an architectural conception as much as a façade, and there should be no such thing as the architect who can plan and the architect who can design. "The sublime," says Reynolds, "impresses the mind at once with one great idea; it is a single blow." The second essential compounds to Reynolds's limitation of the Great Style in painting to historical or mythological subjects—that is to say, those pictures in which the majesty of the human figure is insisted upon, or if we may transfer a term from architecture, that in which there is a large and ample scale. After discussing this rather complex and contradictory matter of scale, Professor Reilly finally described it by saying that we should try to give our buildings an appearance that they are inhabited by not quite ordinary mortals, but a more leisured race of slightly bigger bodies and more refined perceptions than we ourselves possess. The third essential is restraint, with its attendant and complimentary quality of refinement. This consists in the avoidance of any crude naturalism or over-emphasis in ornaments; the use of an abstract and conventional rather than a natural form—corresponding to Sir Joshua's definition of drapery. Again, there should be no sudden contrasts and efforts after piquancy so frequent in modern building . . . but a suave, grave manner infusing itself over the whole design. The second part of the lecture consisted in a historical survey from Egyptian down to modern architecture, illustrated by many lantern slides from buildings, into each of which Professor Reilly pointed out how these three qualities entered: how that in Egyptian there was unity only when the temples were approached on a certain axis and in their interiors. The Greeks, again, obtained exterior unity by voluntarily avoiding the more difficult problems of grouping. Both these styles obtained largeness of scale either by actual rise or the appearance of rise, and the refinements of the Greeks are the commonplaces of the text-books. The Romans, however, in their baths and fora, grappled with problems as complex as any modern building, and obtained a wonderful unity of interior grouping. But still the exteriors of their buildings were hardly thought out at all, and though their scale was superb, they were lacking in everything that might be called

refinement, both in materials and detail. It was the period of Gothic architecture, with its logical and visible construction inside and out, which set a standard of truth and forced the Renaissance builder to pay as much attention to their exteriors as to their interiors. The result was that while striving to produce buildings which in their ignorance they considered to be in "the antique manner," they were really doing work as different from Roman work as that was from Greek. Apart from this, was the further Renaissance solution of the problem which consisted in applying the personality of the artist to the work in hand. For the first time the architect moulds his building and composes his masses. On the decay of vigour which followed on the discovery of Vitruvius, with its consequent baroque reaction, the grand manner migrated to France and England. The Bernini façade of the Louvre with its refined base-mold to the order. The Customs House at Dublin and Somerset House are all buildings undoubtedly in the Grand Manner in every sense. While in modern times we in England have been following the will-o'-th'-wisp of one architectural fashion after another, France, and more lately America, has been content to develop the old large-scaled XVIIIth and early XIXth century architecture from where we left it and to add to it new detail and new interest until the Ritz Hotel in Piccadilly suddenly appears as a veritable portent among us to show how far we have been left behind. In conclusion, Professor Reilly emphasised the importance of sound initial training in what we may call classic or academic work. The production of carefully-shaded drawings is a sure means of obtaining a feeling for refinement and delicacy of detail. Finally, students with a keen eye for what is in the air, are already beginning to turn their attention to the greater delicacies of the early Greek work in England, and to measure the buildings of such men as Smirke, Soane, Elmer, and Cockerell. Thus in time we may be able to compete with the world at large in a great cosmopolitan art of architecture, and "when that good time comes I think we shall find that the combination of unity, scale, and refinement I have ventured to term the Grand Manner, will at last be firmly established among us."

At the conclusion, Professor Reilly showed a number of slides, including Messrs. Lanchester & Rickards' plan for the new County Hall, all bearing upon his definition of the Grand Manner.

A vote of thanks was proposed by Professor Capper, who said he hoped that his students would take Professor Reilly's advice and measure up the older buildings which were continually disappearing from Manchester—both as a training for themselves and as a record for future architects when the buildings themselves were destroyed. Mr. Ogden, the President, in putting the customary vote of thanks to the meeting, said that he was delighted to hear the views which he was continually drumming into the ears of the Manchester Society of Architects endorsed by so notable an authority as Professor Reilly. He (Mr. Ogden) trusted that the fallacy that architecture consisted in chipping bits of stone or compounding concrete, or planing planks of wood and nothing further, was now sufficiently exploded.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the rooms of this Society on Thursday, the 13th inst., Mr. T. H. Mawson read a paper on "English and Italian Garden Architecture," Mr. T. Butler Wilson in the chair. The lecturer said if this lecture were merely a comparison of two schools of garden architecture, the proverb "Comparisons are odious" would be a just criticism upon it. In the title of the lecture he purposely avoided all reference to a comparison, but might say at the outset frankly and unreservedly that, for the most part, mostly all the well-known existing examples of Italian garden architecture were admirably suited to the country and the climate, as also were the typical English examples. We Anglo-Saxons were identified on the Continent with a certain style of gardening where natural trees and grass predominate. The German at Munich points proudly and knowingly to the spacious elms in the "Englichen Garten" luxuriating in the free picturesque groupings of green glades and trees, as in our own home parks; there he almost seems to say, "I have beaten the Britisher on his own line." In the great Italian and French gardens one felt the presence of a complete and studied scheme. As exponents of the art and science of landscape gardening, French and Italian examples were distinctly superior to the English; but for mere lovable beauty nothing can approach the English garden. The charm of an English garden was the refreshing carpet of green grass, and this was our most valuable asset, and where it was absent in quantity, and he might add also in quality, also there was absent the charm of an English garden. In the Italian garden there was no such keynote, but the reverse. This was needfully so, because, after the fierce sun of June the earth parches, and only a few extreme sun-delighting flowers such as geraniums or a few sub-tropical flowers continue to bloom throughout the remaining hot months, and these flourish best where they can gain a welcome shadow from a friendly wall or hedge, and so an abundance of adornment in the shape of walls, balustrades, fountains became a necessity and supply the interest that grass and flowers yield in our home gardens. Magnificence and grandeur is what strikes one in an Italian garden; in England, homeliness and simplicity. The lecture was profusely illustrated by lantern slides.

GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION.—A meeting was held on Thursday last week at Gloucester, the President (Mr. F. W. Waller) being in the chair. Mr. H. Dare Bryan, F.R.I.B.A., of Bristol, read a paper entitled "Byzantine Influence on the Plan Form of the Western Cathedral." The lecturer commenced with the typical plans of the Roman basilicæ, and traced the development through the era of the early Christian Church in Italy to the magnificent edifices of the Byzantine period as exemplified in St. Sophia, Constantinople. Examples of the later Greek churches were shown, and the gradual evolution of the Western Cathedral, with its "long-drawn aisle," traced in detail by the lecturer. Gloucester Cathedral, with its especially eastern type of plan, was the first of the English cathedrals to be illustrated, and Ely the last.

NORTHERN ARCHITECTURAL ASSOCIATION.—A meeting of this Association was held at No. 6, Higham-place, Newcastle, on the 12th inst. Mr. Joseph Oswald, F.R.I.B.A., read a paper entitled "The Glory that was Greece," and described the ancient buildings and sculptures of Olympia, Delphi, Corinth, and Athens. The paper was illustrated by a large number of lantern views. Mr. F. W. Rich proposed, and Mr. J. W. Taylor seconded, a hearty vote of thanks to Mr. Oswald, which was supported by the President, Mr. A. B. Plummer.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At a meeting of this Association, held on the 12th inst. in 117, George-street, Edinburgh—Mr. W. T. Oldrieve, F.S.I., F.R.I.B.A., Vice-President, in the chair—Mr. Moritz Kahn, London, read a paper entitled "Practice and Methods of Modern Reinforced Concrete Construction." Among the general advantages of the use of reinforced concrete were permanence of construction, fire-proofness, and economy. He would not recommend the use of reinforced concrete for decorative purposes, as the surfaces obtained were too cold and could not be treated with decorative effect. Reinforced concrete was only suitable for the structural part of the building, to replace the steel skeleton.

# Legal Column.

## WORKMEN'S COMPENSATION.

WE have frequently impressed upon our readers the fact that under the new Workmen's Compensation Act the liability is more extended, in that there is no limit of locality. Two recent cases illustrate this and emphasise the necessity of insuring. In Ezart *v.* Spratt, tried in the City of London Court, the applicant was a porter employed by a hairdresser. The assistant had sent the man across the road to purchase a collar for a customer, who paid for the collar and tipped the man 2d. In crossing the road the porter was knocked down by a bicycle and injured. The Court held the man to have been acting within the course of his employment, and awarded 8s. a week during incapacity.

In the second case, Dothie *v.* MacAndrew & Co., the applicant was a ship's captain who had gone ashore at Antwerp to consult the Consulate about some desertion on the part of the crew. He found the Consulate closed for the luncheon-hour, and proceeded to get on a tram whilst in motion and met with his death. The County Court judge held that he was a "workman," and, although there was no evidence where the man intended to go, that he was injured in the course of his employment. The Court of Appeal have not given a decision on the second point since the case has been remitted to the County Court judge to inquire whether the man's pay, 216*l.* per annum, with the board and allowances made him, did not exceed 250*l.*, and therefore render him not "a workman" within the Act, as he was employed otherwise than in manual labour. The case well illustrates the difficult questions arising under the new Act.

## MUNICIPALITIES AND CONTRACTS.

The case of Bourne and Hollingsworth *v.* Mayor, etc., of Marylebone is one of interest to the public in these days of municipal undertakings, since it raised the question of the liability of the Corporation for a breach of contract. The plaintiffs, who were drapers, were enlarging their premises in Berners-street, and were to hold a sale in September. The defendant Corporation had the previous year given notice that the voltage at which current would be supplied would be 240 instead of 200, and the plaintiffs being anxious to know whether the new voltage could be supplied in time for the sale, entered into negotiations with the defendants as it would be for the mutual convenience of both parties that the new premises should be fitted with plant suitable to the 240 volt current. As a result of these negotiations the defendants undertook to supply the new current by the first week in September. The defendants failed to supply the current by the time agreed to, but subsequently promised that if an arc lamp on each circuit were cut off the current should be supplied in two days. This agreement was also not carried out, the current was not supplied until October 3 to the plaintiffs in common with other persons, and this action was instituted, the damages being agreed at 500*l.* The defendant Corporation then raised the defences that the contracts were not under seal and were not binding upon them, and that under the Acts governing their Corporation and the Electric Lighting Confirmation Act, 1901, the only liability the Corporation was under was a penalty of forty shillings. The question of authority was left to the jury, and answered in the plaintiffs' favour. As regards the sealing of the contracts, the jury found that it was necessary for the defendants as electric light suppliers, to enter into such contracts, and the judge applied the principle to this contract which was for the benefit of the Corporation, that has been applied in other cases where a Corporation has accepted goods supplied or work done for them, and held the contracts binding upon them. Holding further that as the Corporation had statutory powers to

trade, the distinction sometimes made between municipal corporations and trading corporations did not hold good in this respect. Finally, the court held that as the breach complained of here was not that of a statutory obligation under the statutory powers of the Corporation, but a contractual obligation the penalty clause did not apply, and the Corporation were liable in damages. The case is an instructive one for the advocates of municipal trading, as it shows the difficulties placed in the way of private individuals who have to seek a remedy against municipalities engaged in industrial undertakings.

### The London Building Act.

In the case of the County of London Electric Supply Company *v.* Perkins, the Divisional Court had to decide whether a "street box," 22½ in. by 24 in. and 30 in. deep, laid beneath the footway in connexion with the appellant company's electric cables, was a "building or structure" before constructing which notice should have been given to the District Surveyor under sect. 145 of the London Building Act, 1894. Two decided cases, viz., Whitechapel Board of Works *v.* Wren, and Charing Cross and Strand Electric Company *v.* Woodthorpe, have held such inspection chambers to be structures within the section, but in this appeal it was attempted to distinguish those decisions on the grounds that the structure was smaller than those in question in those cases, and that under the Electric Lighting Order notice had been given to the London County Council. The court held that as the magistrate had found as a fact that this was a "structure," the question of size could not differentiate the case, and the fact that notice had to be given to other authorities did not prevent the statute having to be complied with and notice being given to the District Surveyor. It is not very apparent what hardship is involved in giving the requisite notice, but the cases are clear, and can only now be reviewed by the Court of Appeal.

### METROPOLITAN ASYLUMS BOARD.

At the fortnightly meeting of the Metropolitan Asylums Board on Saturday last week the following, amongst other matters, were dealt with:—

*North-Western Hospital.* — The Hospitals Committee reported on a plan which the Engineer had prepared in regard to the drainage of four of the wards at this hospital, and it was agreed to refer the matter to the Works Committee to be dealt with.

*Millfield Estate.*—It was agreed to approve of a plan prepared by the Engineer for the erection of a lodge at the entrance-gate at Millfield, and to forward it to the Local Government Board for their sanction.

*Quantity Surveyors.*—The Works Committee reported that, in the light of certain representations made to them by the accountants, they had given careful consideration to the question of revising the regulations under which quantity surveyors should in future be employed by the Board, and to obviate difficulties which had arisen in the past, more particularly in connexion with the measurements of variations on contracts and the adjustment of contractors' final accounts, they submitted the following regulations:—(*a*) *Appointment and remuneration:* (1) The appointment of all quantity surveyors will be made by the Board upon the recommendation of the Works Committee; (2) the quantity surveyor who may be appointed to take out the quantities will not necessarily be appointed to measure variations on the completion of the works; (3) the commission to be paid to a quantity surveyor will be fixed by the Board, on the recommendation of the Works Committee, at a rate to be determined in accordance with the character and value of the works in each case, and this payment shall include all services in adjusting p.c. items. (*b*) *Taking out quantities:* (4) As regards the taking out of quantities, no commission will be paid on provisional amounts, provisions for contingencies, or provisional quantities, except when actual work, other than clerical, is involved, nor upon any sums added in such quantities for carriage or fixing; (5) all fixed profit amounts are to be carried out by the quantity surveyor into the bill of quantities before the same are issued to the contractor, leaving the contractor to add for carriage and fixing only if necessary; (6) no provisional amounts for payments to architects by contractors for extra copies of plans or otherwise are to be inserted in any bill of quantities. (*c*) *Measuring variations:* (7) The adjustment of every variation order must be clearly shown and any prices to be found in the original bills must be inserted in the variation account in black ink, other prices based upon the bills or otherwise fixed being inserted in red ink; (8) final accounts must be so summarised as to show clearly the working out of the original contract separately from new works; (9) the application of provisional sums and expenditure against p.c. items must be shown against or opposite to the particular provision or p.c. as omitted. The number of the folio in the original bills where the provision or p.c. item appears must also be given in the final account showing the application of that item; (10) as regards the measuring up of variations, no commission will be paid in respect of provisional amounts, provisions for contingencies or provisional quantities as "omissions," nor upon any sums added in such quantities for carriage or fixing, and commission will be paid in respect of such amounts as "additions" only when actual work, other than clerical, is necessitated; (11) quantity surveyors are required to furnish, without charge, and as one of the conditions of their employment, one copy of the detailed bills of measurements of variations on contracts.

## Fifty Years Ago.

From the *Builder* of February 27, 1858.

In places, as in London, for example, where the supply of water is necessarily confined to a short period daily, it becomes a matter of very great importance to provide, in each dwelling, receptacles large enough to supply liberally all reasonable wants of a family for at least twenty-four hours; there are in truth few provisions of equal importance to public health and comfort. Yet I believe that an inquiry into the actual state of things would show that, not only are these receptacles, in the dwellings of the humbler classes, far too scanty, but in a multitude of cases wholly wanting. It is in the hope of suggesting some alleviation of this evil, that I beg to address these few remarks to the Institute.

As far as I know, there are but three kinds of cisterns in general use. First, there is the water-butt—a rude and primitive contrivance, insufficient in capacity, and liable to speedy decay, and in its decay destructive to the quality of the water, causing it to teem with all manner of noisome creatures. Secondly, there is the lead cistern—a very costly receptacle when substantially constructed, and one which is liable to the serious objection of very frequently poisoning its contents. Thirdly, the slate cistern—a vast improvement upon its predecessors, and a contrivance with which we might well rest contented, were its cost such as would admit of its general adoption in the humbler classes of dwellings.

The purpose of my communication is to suggest a fourth material, and to press upon manufacturers the expediency of at once coping with and overcoming the difficulty of making cisterns of a strong, coarse earthenware, of ample size, and at a very low price. I will not suppose it to be beyond the reach of manufacturing skill to supply this great desideratum.

*** The above is from a letter signed by the well-known name "Sydney Smirke." It is satisfactory to reflect that the service of water in London is not now "necessarily confined to a short period daily," and that galvanised-iron has provided the cheap and wholesome cistern which Sir Sydney Smirke desired to see.—Ed.

Asphalt Paving in Stepney.—The Works Committee of the Stepney Borough Council on Wednesday last week recommended that the contract with the Val de Travers Asphalt Paving Company for the supply and laying of asphalt paving in the borough be extended for a further two years, and this was agreed to.

## Illustrations.

### COMPETITION DESIGN FOR THE LONDON COUNTY HALL.

By Mr. W. Flockhart.

We give this week the river elevation and two plans of Mr. Flockhart's fine and original design for the London County Hall.

The following extract from the author's descriptive Report sent in with the design, will serve to explain his view of the problem, and his intentions in the design:—

"The dominant idea constantly present to my mind in preparing the scheme for these buildings has been to provide all the accommodation asked for by the instructions in as simple, direct, and practical way as possible, and to give to every portion of the building, and to every room and corridor in the same, plenty of light and air. With this end in view it seemed to me that the proper scheme to adopt was what is called 'The Single-corridor Principle,' and this is the one upon which these plans have been prepared, and while I have endeavoured to give to the buildings as a whole a sufficiently important architectural treatment, it did not seem to me that the occasion or the purpose of the building was such as to make it desirable or appropriate to allow the plan to be dominated by, or to grow up around, some purely architectural idea. At the same time one must recoginse that a building of this size and importance should be treated in a dignified, architectural manner, and I think that by arranging the plan on symmetrical lines and allowing the main masses to declare themselves in the external treatment of the different elevations, the result would be the production of a monumental building, which would produce its effect by the simplicity of its masses rather than by the predominance of any one feature.

The architectural treatment of the exterior is based upon that phase of Italian Renaissance which found such noble expression in the buildings erected in this country during the XVIIth and XVIIIth centuries, and in London by Wren, and those architects who were his immediate predecessors and followers, this being the style which I think adopts itself most readily to modern requirements."

### DESIGN FOR A CUSTOM-HOUSE.

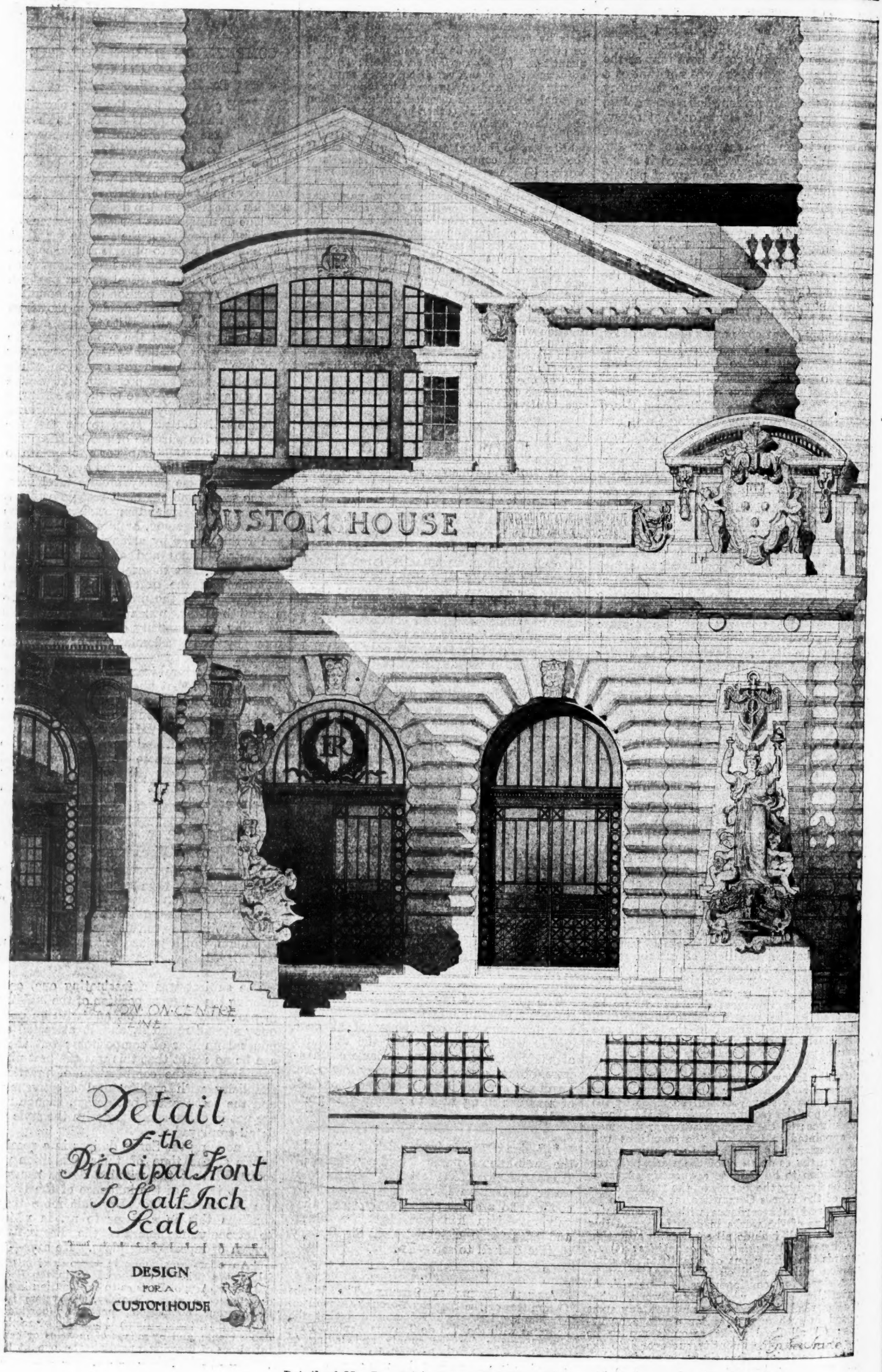
Soane Medallion, 1908.

We give the perspective view and the principal plan of the design for "A Custom-House situated on a quay at the Head of a Dock Basin"—the subject which the Council of the Institute gave this year for the Soane Medallion, which gained for its author, Mr. Geo. Drysdale, the Soane Medallion for the present year.

The subject was a fascinating one, considering the assumed position of the building in proximity with water, and with an open quay site all round it, and it attracted an unusual number of competitors; but there can be no doubt that this was the best plan exhibited, in the combination of practical simplicity with architectural effectiveness, and the best worked out design, though we are not in entire sympathy with the style of detail employed.

In noticing the Soane designs in a special article at the time of their exhibition we remarked that the winning design showed evident traces of the influence of the Ecole des Beaux-Arts. Mr. Drysdale more than confirms this in a letter to us, in which he strongly recommends the Beaux-Arts system of representing plans. He says—

"An effort was made in these drawings to follow the principles adhered to in the Ecole des Beaux-Arts of Paris as to explanation in the drawing of a plan. Broadly, the system is—leave your circulation portions (corridors, etc.)—white, toning down the rooms or resting departments, and by means of mosaics or careful pieces of drawing arresting the eye at important or axial points. Surely this is a better




*Detail of Mr. Drysdale's Soane Medallion Design.*

method than the haphazard way English plans are generally presented, and much easier for the public to follow than the usual architectural maze called a plan. As to the drawing of the elevations, surely it is better on drawings like these, which always remain simply drawing, by means of shadows, joints, backgrounds, etc., to try and express a building, rather than a few architectural lines intelligible only to the few."

As to the elevations we quite agree; the French system of geometric shading on geometric principles is admirable. We do not know as to the plans. To our thinking these landscape-like plans, with a great deal of colouring up for effect, are less easy to follow and apprehend with the eye than the merely simple exposition of walls, piers, and spaces, usual in plans prepared in an English office; and we do not know that the French system renders the plan any more intelligible to the uninitiated than the English system, though it has no doubt a more artistic effect.

## Correspondence.

### VENTILATION.

SIR,—I am puzzled that, whereas many experts in ventilation entirely condemn the downward system of ventilation, they advocate that fresh-air inlets should be placed 5 ft. or 6 ft. above floor-level, and that the incoming air should have an upward direction.

It appears to me that in the latter system the incoming air must pass over the heads of some of the occupants of the room and descend to reach them, and in doing so must necessarily be liable to be contaminated in exactly the same manner as when the downward system is adopted.

I am not contending as to the right or wrong of either system, but simply that any objection on account of the downward movement of the air which applies to the one applies with almost equal force to the other. PUZZLED.

*** Our readers would probably be glad to have the opinions or experience of others on this important subject.—ED.

### INCORPORATED CLERKS OF WORKS' ASSOCIATION.

THE twenty-fifth annual dinner of the Incorporated Clerks of Works' Association of Great Britain was held on Saturday last week at the Hotel Cecil, Strand, W.C., Mr. Walter Cave, President of the Architectural Association, presiding, supported by Sir A. Brumwell Thomas and Messrs. G. Frampton, R.A., Louis Ambler, Arthur Keen, H. Tanner, jun., E. Guy Dawber, E. L. Lutyens, A. Huntley, J. Peacock (President), A. Fincham (Vice-President), F. Dashwood (Secretary), J. Brady (editor of the *Journal*), C. W. Denny, and others.

The loyal toast having been honoured,

Mr. C. W. Denny proposed the toast of "The Architects and Surveyors." He said that architects and surveyors valued the work of a conscientious clerk of works, for they were able, when they could rely upon him, to devote more time to the creation of fine designs. If, as Ruskin said, a nation was judged by its buildings, architects held a very responsible position in the world, and the many fine buildings erected by architects during the last forty years exhibited their capabilities and their knowledge of their responsibilities. Unfortunately, there was a false spirit of economy about. Public bodies, instead of erecting buildings which would be a monument to the district, studied the ratepayers too much. In ancient times this was not so; the Greeks and Romans erected their temples, not as a commercial speculation, but as a monument for all ages, and our cathedrals and abbeys were erected in a spirit of love. The designers and craftsmen did not have to consider whether the buildings would pay, and they were able to devote their individuality to their work. As to surveyors, their careful work helped considerably in the successful carrying out of building; but they did not receive much recognition in that work. There was a system being introduced from America which might result in architects, surveyors, and clerks of works being alike dispensed with. Plans were offered to the client, and buildings were to be erected on the payment of a small stated commission or small percentage.

Sir Brumwell Thomas, who responded for the architects, said it would be interesting to consider the sub-division of responsibility amongst them in carrying a building into effect. It was the age of specialising, and the tendency seemed to be to split up everything and to concentrate on each division the requirement of more and more specialised knowledge. The care and accuracy and completeness with which an architect to-day had to lay down his designs, the almost scientific manner with which the surveyor and the builder ascertained matters of cost and determined expenditure, and the constant study that was necessary to the clerk of works in order to keep himself in touch with new inventions, and, he might almost say, to do with new bases of construction and stability—all this emphasised the tendency to produce very highly-trained experts in these days of almost regimental organisation, superseding the old-time intimate and personal conduct of building work; and it was more than ever necessary that they should all endeavour to foster a spirit of understanding of the sentiment underlying their work.

Mr. A. Huntley replied for the surveyors, and referred to the help given by the clerks of works to surveyors. He wished the Association long life and prosperity.

Mr. J. Peacock, President, then proposed the toast of "The Worshipful Company of Carpenters." He spoke of the help the Company had given the Association, particularly in granting them the use of their premises for meetings. The Company were also doing excellent work on behalf of the young students who were entering the trade by means of their schools and examinations.

The toast having been honoured,

The Chairman proposed the toast of the evening, "The Incorporated Clerks of Works' Association." He said that the positions of the architect, surveyor, and builder were well defined, but there was far more scope for individual qualities and the exercise of tact and judgment in the functions of the clerk of the works. He had to represent both the architect and his client, and he had to guard against the artistic impetuosities of the one and watch over the interests and the purse of the other. The office of clerk of the works was comparatively modern. It was not necessary in the old days when the contractor as we knew him did not exist. In the glorious day of English architecture, when our great cathedrals were built, the old monks not only planned, but carried out their noble designs, laying stone upon stone with their own hands. But, unfortunately, all this had changed, and modern conditions had produced the demand for men thoroughly well equipped in all the technicalities of building, who were able to understand step by step the whole complicated system of modern construction. They had to be well educated, full of tact and resource, capable of exercising decision at a moment's notice, and able quickly and accurately to translate the mind of the architect on all the many varied points which arose in the erection of a building. The clerk of the works, it seemed, must know everything, both what was in the architect's mind and how the builder must carry it out. In fact, he (the speaker) sometimes wondered why such people as architects and builders should exist at all when everything could be done quite as well by the clerk of the works. The Incorporated Clerks of the Works' Association of Great Britain was founded in 1882, and at the present time had a membership of 130. The age when intending members were eligible had recently been lowered. The Association published a monthly journal, which was sent out, free of cost, to architects and surveyors at a loss of some 50*l.* a year. Amongst the many objects of the Association was the keeping of a register of the clerks of works who were available for appointments, and last, and not least, the administration of a benefit fund. He had endeavoured to give a short description of the work which was expected from, and in most cases so admirably carried out by, the clerk of the works in this country; but there was another side of the question which it was impossible to ignore. The strain, not only mental, but physical, which the work involves, was very great, and many men became old before their time, and, to a certain extent, unfitted to carry on one of the most laborious and existing undertakings connected with building. They lived in the midst of constant noise and confusion, exposed to all conditions of climate and weather, and one could not wonder that many had to give up their work at a comparatively early age. Up to last year the Association relied on their own funds to help those who required it; but it was then felt it was necessary to make a wider appeal to carry on this very excellent work. Since the last dinner the sum of 191*l.* 2s. had been subscribed, and some 41*l.* had been expended in help to their fellow-members in distress. To meet this necessity of increasing the benefit fund the annual subscription had been raised, and an entrance fee instituted, also a class of honorary members at 1*l.* 1s. a year had been started. He wished to make an urgent appeal to all the visitors to join the ranks of the honorary members. In such a good cause he did not think he should ask in vain, and he asked all those who were willing, not only to join, but to give further assistance, to write direct to Mr. Dashwood, the Secretary, at 20, Binfield-road, Clapham. There were many other important functions carried out by the Association, and the work it was doing was of a very excellent character.

Mr. J. G. Peacock, in response, said that the Association had recently started a fund for the assistance of those members who were not able to provide for themselves in the day of need. It might be wondered why they had delayed so long, and he might say that for the last five or six years they had been considering the matter, but they were always met by the little difficulty of the necessity of appealing for outside aid; but after the promise of their Chairman at last year's dinner they had started the fund, and it was now in working order, and the Association would be glad of all the help they could get. He was glad to say that they had altered their rules as to the admission of members into the Association, and now clerks of works could come in at an earlier age than before. It used to be forty-five years, but that was rather foolish, for a man who was engaged as a clerk of works should not be refused admittance even though he might be only twenty-five years of age. They had recently seen what a young man in the architectural profession could do, and that opportunity would not have been given to any young man, say, twenty-five years ago; there were now so many technical schools and other privileges to help those who had ability. The Association had altered the rule the other end also, and had made it impossible for a man over fifty-five years to join, and that he quite agreed with.

Mr. J. Brady, editor of the *Journal*, then proposed the toast of "The Press," coupled with the name of our representative, who responded.

Other toasts were "The Visitors," proposed by Mr. Aitchison, and acknowledged by Mr. E. Guy Dawber; and "The Chairman," proposed by Mr. A. Fincham.

## Trade Catalogues.

ELECTRIC TIME SERVICE.—The Lowre Electric Clock and Appliances Company, Ltd., Catford, London, have sent us a catalogue of their electric clocks. In their time-service system one pendulum controls all the clocks in a building. It is stated that when the pendulum is properly fixed and regulated its errors for months together will be inappreciable. At the Royal Arsenal, Woolwich, a three-quarter-seconds pendulum works forty-five clocks and the large clock at the main entrance, and at the Municipal Technical Institute, Belfast, 120 clocks and two time registers are all driven by one pendulum. It will be seen, therefore, that this system is out of the experimental stage. All our readers who are thinking of adopting an electrical system of time control for a large number of clocks should write for this catalogue.

The Yorkshire Hennebique Contracting Company, of Leeds, send us a book containing a large number of views of works executed by them in Hennebique's patent ferro-concrete. Many of the structures illustrated are buildings, among which we observe only one or two possessing claims to attention on the score of artistic merit, the best example of the kind being the office building erected entirely in reinforced concrete in Hope-street, Glasgow, from the designs of Messrs. Salmon, Son, & Gillespie. At the same time it should be said that several of the other buildings serve the purpose of demonstrating the suitability of reinforced concrete for the solution of various structural problems such as frequently come before architects. Bridges and viaducts are well represented in this book, the most noteworthy examples being Tucklon Bridge, 353 ft. long, near Bournemouth, a graceful bridge of two arched spans at Clithero, a waterside viaduct at Waterford, and several canal bridges. The remaining views relate to quays, coal-bunkers, water-tanks, and elevated reservoirs. The collection of illustrations is an interesting one, whose convenience would be increased by an index, or, at any rate, a table of contents.

Messrs. Hodgson & Stead, of Manchester, send us a copy of their new catalogue, giving a selected list of various classes of weighing machinery, from counter scales up to large weighbridges for wagons and railway trucks. Several types of self-contained weighbridge

are described and illustrated, and we may here refer specially to the automatic dial for quick weighing, which can be fitted to any of the weighbridges mentioned in the catalogue. Improved steelyards, entirely dispensing with loose weights, and fitted with or without relieving apparatus, represent another specialty of the firm. Fixed and portable platform weighing machines are illustrated in considerable variety, and the concluding pages of the book are devoted to scales of different sizes and types.

The United Kingdom Fireproofing Company send us a sheet of coloured drawings illustrating various systems of fire-resisting floors designed with the object of providing for different architectural or structural requirements.

No. 1 provides for reinforced concrete joists supported at the ends by rolled steel beams. The joists are in the form of an inverted "T," with narrow flanges on which rest hollow slabs of plain concrete, and the floor is completed by an upper layer of the same material.

No. 2 consists of hollow concrete beams, with tension reinforcement, placed side by side, forming a deep floor, finished by a thin layer of plain concrete. As in the case of floor No. 1, the beams are supported by rolled steel beams.

No. 3 includes reinforced concrete joists of triangular cross-section for the greater part of their depth, the sloping sides being intended to support hollow terra-cotta lintels, whose ends are finished to the same angle, and above these is a layer of plain concrete. This floor also is carried by rolled steel beams.

No. 4 comprises deep reinforced concrete joists spaced rather closely and moulded so as to permit the insertion of terra-cotta or concrete slabs in pairs, leaving a hollow space between. An upper layer of concrete completes the floor, wherein rolled steel beams are used as supports. This floor is designed for level ceiling construction.

No. 5 resembles floor No. 3 so far as the reinforced concrete joists are concerned, but these members are laid more closely together, and carry terra-cotta tubes, each having two hollow spaces. The tubes are made in two varieties; in one the lower face is flush with the underside of the joists, and in the other the tubes project below the joists, the latter being protected by terra-cotta filling strips. The tubes in each case are prepared suitably for plastering.

The advantages claimed for floors 1 to 5 are that they can all be constructed without centring; that they are light, soundproof, and fireproof; and that the hollow spaces can be utilised for ventilation and other purposes.

Floors Nos. 6 and 7 include rolled steel beams embedded in concrete, in one case monolithic with a solid concrete floor reinforced at intervals, and in the other case monolithic with reinforced concrete beams between which are terra-cotta hollow slabs covered on top by plain concrete.

From the foregoing notes it will be seen that the sheet of drawings fully complies with the object for which it was prepared, and gives the architect quite a comprehensive selection of designs for consideration.

We have pleasure in noticing the illustrated catalogue of "Electric Fittings" sent to us by the Birmingham Guild of Handicraft, Ltd. The designs are throughout admirable; simple and graceful in line, and properly expressive of the character of metal-work. It is well to point out what satisfactory results may be obtained in work of this kind by simple means and without anything in the nature of pretentious and florid ornament, or what is often miscalled ornament.

## BOOKS RECEIVED.

SIR WILLIAM TEMPLE ON THE GARDENS OF EPICURUS (Chatto & Windus.)

HOVE: WITH ITS SURROUNDINGS. (The Homeland Association. 6d.)

## COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held at the Guildhall on Thursday last week, the Lord Mayor presiding.

*Fusing of Electric Wires.*—Mr. Fraenkel asked the Chairman of the Streets Committee if he was aware that on the previous Tuesday an explosion occurred in the City through the fusing of electric wires under the pavement. He further inquired if, having regard to previous explosions that had taken place, any steps were being taken to ensure the safety of the public?—Mr. Heilbuth, replying, said he had no knowledge of any explosion having taken place. The wires and lines were carefully looked after, and everything done to ensure the safety of the public.

*Southwark Bridge.*—Mr. Green asked if the statement made at a recent meeting of the London County Council to the effect that negotiations had been opened with the Corporation for the passage of tramways over a widened Southwark Bridge. If so, when had the Court authorised the Bridge House Estates Committee to negotiate.—Mr. Deputy and Under-Sheriff Algar, Chairman of the Committee, said that he was unaware that any negotiations had taken place on the subject. As members knew, no decision had yet been arrived at with regard to the widening of Southwark Bridge.

*Cost of a Loan Exhibition.*—The Library Committee, reporting on the Loan Exhibition of pictures, held in the Art Gallery in 1907, submitted a statement of accounts showing the entire expense to be 1,014*l.* 2s. 9d.

*Franco-British Exhibition.*—The Coal and Corn and Finance Committee, reporting on a letter of the Executive Committee of the Franco-British Exhibition asking if the Corporation would be willing to erect a pavilion, stated that they could not recommend that a pavilion should be erected by the Corporation, and asked that it may be referred to them to report as to whether, and if so to what extent and in what way, the Corporation should be represented at the Exhibition. After a discussion, in the course of which it was stated that the cost of a suitable pavilion would be from 2,000*l.* to 4,000*l.*, the Committee's report was adopted.

## Obituary.

SIR JAMES KNOWLES.—We have to announce the death, on February 13, at his residence in Brighton, of Sir James Knowles, K.C.V.O., in his 78th year. Sir James Knowles was the son of a London architect, and, having received his education at University College, he entered his father's office. He was elected, in 1853, an Associate, and in 1876 a Fellow, of the Royal Institute of British Architects. Sir James Knowles was the architect of the large premises at the corner (east) of Fleet-street and Chancery-lane for Mr. Edmund Hodgson, which are illustrated in our volume for 1855; the Civil Service, afterwards the Thatched House, Club-house (on the site, in part, of the old Thatched House coffee-house), St. James's-street, altered and redecorated by Mr. R. C. Murray fourteen years ago; Albert-mansions, Victoria-street, S.W.; the churches of St. Saviour, Cedars-road, Clapham, for 650 seats, and St. Stephen, Grove-road, Clapham Park, S.W., for 600 seats, both designed after the Gothic style, 1864-7; and a house on Black Down, Aldworth, Surrey, for the late Lord Tennyson, his intimate friend. For Baron Albert Grant he made the plans and designs for the laying out of the public garden and the Shakespeare Memorial fountain in Leicester-square, 1874, and for Kensington House, a palatial mansion on a site of 7½ acres, comprising those of the Rookery, (old) Kensington House, and Colby House, in the High-street. The house was begun in 1873, but after 275,000*l.* had been expended it was left incompleted, and ultimately gave place to the houses of Kensington-court and the London and County Bank. At the sale of the materials for 9,915*l.*, in 1882, the white marble staircase, with caryatides of heroic size, which cost 11,000*l.*, was bought for 1,000*l.* by Mme. Tussaud & Sons, and part of it is now in their exhibition, Marylebone-road. In 1869 Sir James Knowles founded the Metaphysical Society; he was editor of the *Contemporary Review*, 1870-7; he then founded, with himself as proprietor and editor, the *Nineteenth Century*, since the *Nineteenth Century and After*, *Review*. In his collection in his house at Queen Anne's Lodge, St. James's Park, S.W., is Sir John Millais's portrait of Lord Tennyson.

A DOG IN A MEMORIAL WINDOW.—At the Carlisle Consistory Court last week, Chancellor Prescott had before him an application from the Vicar of Killington, the Rev. R. Fausset, for a faculty for a memorial window to be placed in Killington Church in memory of a lady. The design of the window represents the Resurrection, and the Chancellor said the treatment of the subject was open to criticism, as in one of the large divisions the prominent figure was a dog. According to the artist's explanation the fact that the dog had its tongue out panting showed the speed with which the disciples had come to join those who had not seen Christ. He (the Chancellor) had yet to learn there was any authority for the assumption that a dog accompanied those disciples. In Eastern lands the dog was never the friend and companion of man as in our own country. The dog was mentioned about forty times in Holy Scripture, and invariably with aversion and contempt. If the faculty was issued he could only express his hope that the dog would be removed.

## General Building News.

LIVERPOOL CATHEDRAL.—The committee's annual report, just presented, shows that up to the date of audit the total sum credited to the committee was 292,658*l.* Of this amount 144,465*l.* is now invested, 52,277*l.* earmarked for special objects, and 8,233*l.* is the balance of promises not as yet paid. The total amount so far expended is 82,723*l.* 12s. on foundations and structure, and 4,967*l.* on general expenses account. Since the last annual meeting two donations of 1,000*l.* each have been received—one from the Misses Ashton, and the other from an anonymous donor. There are 226 men employed on the building, and the walls of the Lady chapel are now 35 ft. in height.

WESLEYAN CHURCH, FELLING.—A new Wesleyan church has been built at Holly Hill, Felling. The new church will cost about 3,000*l.*, and has accommodation for 500 sittings. There are also two vestries and a chancel. The architect was Mr. John Hope, and the contractor Mr. Robert Davidson.

NEW CHURCH, HALESOWEN.—The new church of St. Margaret, Hasbury, Halesowen, has just been opened. The building, which was designed by Messrs. J. E. K. and J. P. Cutts, is of brick with stone pillars and facings, consists of nave, aisles, chancel, side-chapel, organ-chamber, porches, clergy and choir vestries, and provides accommodation for 500 people. The total cost amounts to 4,000*l.*

CHURCH ENLARGEMENT, HORSELL.—The plans of Mr. Unsworth, architect, for the enlargement of Horsell Church have now been approved. The scheme is estimated to cost about 2,000*l.*

MISSION CHURCH, NORWOOD GREEN, HALIFAX.—A mission church has been erected at Norwood Green, near Halifax, at a cost of about 1,000*l.* The church has sitting accommodation for 170 persons, and was designed by Messrs. Howarth & Howarth, of Cleckheaton.

PROPOSED WESLEYAN CHAPEL, TIBSHELF.—The Tibshelf Wesleyans have a scheme on hand for building a new chapel. Mr. Goodacre, of Mansfield, has been selected as architect. The estimated cost of the proposed work is 1,000*l.*

PROPOSED NEW CATHOLIC SCHOOL, SUNDERLAND.—It is proposed to build an infants' school for Catholics in Spring Garden-lane and Flag-lane. The plans have been prepared by Mr. Jos. Spain, and the building is to accommodate 200.

ELEMENTARY SCHOOL, POCKLINGTON.—A new elementary school has been erected at Pocklington by the East Riding Education authority, at a cost of 2,660*l.* The school is on the classroom principle, each room having an exit to the cloakrooms. There are in all five rooms, three to seat fifty children each, one for forty children, and the other for between seventy and eighty infants. The work was executed by Mr. Thomas Grant, Pocklington, under the supervision of Mr. B. B. Stamford, building surveyor for the Educational Department, County Hall, Beverley, with Mr. R. W. Breton, Pocklington, as clerk of the works. The school fittings were supplied by Messrs. Illingworth & Ingham, Leeds.

A YEAR'S BUILDING IN SUNDERLAND.—The annual report of the Sunderland Corporation Building Department has ben drawn up by Mr. Frank G. Taylor, Building Surveyor. It states that during the past year there have been 271 plans for buildings of all descriptions submitted for the consideration and approval of the Committee. Of this number 240 have been approved, twenty-two disapproved, and in nine cases the Committee have not deemed it advisable to interfere with the erection of the buildings. Eighty-one plans were approved for new houses, etc., and they represent 228 houses, of which forty-seven will be one story in height, forty-four will be one and a half stories, and 137 will be two or more stories in height. In addition to the plans referred to, twelve estate or street plans have been laid before and considered by the Committee; eight of these have received the approval of the Committee and Council, and in four instances the Council's disapproval has been signified. In accordance with sect. 43 of the Borough of Sunderland Act, 1835, certificates of completion have been given in respect of 283 houses.

PRIMITIVE METHODIST BUILDINGS, SCUNTHORPE.—The Scunthorpe Primitive Methodists are erecting a new church and schools in Frodingham-road. The church is to seat about 800 persons, and the schools are to accommodate 500 scholars. The buildings are designed by Mr. Henry Harper, architect, of Nottingham, and the cost will be a little over 5,000*l.*

CARNEGIE LIBRARY, WATERLOO, NEAR LIVERPOOL.—The new library in Church-road, Waterloo, was opened by Lord Stanley on February 6. The building, which has been erected at a cost of 7,000*l.*, including fittings and furniture, was presented by Mr. Andrew Carnegie, and a competition was held three years ago, limited to

Liverpool architects, which was won by Messrs. Black & Milligan, who have successfully carried out the work. The design is of the two-gable type, with entrance door between, and is quiet without rising to any degree of that dignity which the XVIIIth century architects knew how to impart to their smallest buildings.

COUNCIL SCHOOL, LITTON MILL, DERBYSHIRE.—A new County Council school has been erected in this village. The work has been carried out by Messrs. Cox Wilson & Sons, contractors, of Ashford, from plans prepared by Mr. J. B. Mason, architect, Duffield. The heating is by hot air, the apparatus being fixed by Messrs. Langfield & Co., of Manchester, and the lighting is by electricity. This work has been carried out by Mr. Gaskell, of Heaton Mersey.

NEW WORKHOUSE FOR KINGSTON.—The Kingston Board of Guardians, after prolonged discussion regarding the scheme for the proposed new workhouse on the Norbiton Common Farm, decided, on Tuesday, to nominate five architects, in addition to Mr. Hope, to submit competitive plans for the building and all prospective additions thereto on the same design, and that economy should be a leading feature. It was also agreed that the designs should be submitted to an assessor, whose nomination the President of the Royal Institute of British Architects is to be asked to undertake. This decision was come to in preference to the adoption of a proposal inviting Mr. Hope to prepare plans in accordance with an order from the Building Committee.

DRILL HALL, HOVE.—The new Hove Drill Hall of the 1st Volunteer Battalion Royal Sussex Regiment has been erected on a site in Marmion-road, Hove. The hall is of corrugated iron with a brick front, and is 101 ft. long by 54 ft. wide. Mr. F. T. Cawthorne prepared the plans.

NEW POST-OFFICE, DARTMOUTH.—The erection has just been begun in this town of a new post-office. The contractors are Messrs. Heydon & Ferris, Mr. E. H. Back being the architect.

PROPOSED COMMERCIAL EXCHANGE IN KINGSWAY.—A company styling itself the Kingsway Exchange of Commerce, Ltd., has secured a site in this thoroughfare for the purpose of building an exchange. Mr. Robert J. Worley has prepared the plans, which provide for a basement, ground floor, and six floors above.

EXTENSION OF THE PORTSMOUTH WORKHOUSE INFIRMARY.—The Portsmouth Board of Guardians are having the infirmary under their control enlarged. The extension comprises two blocks, one for males and the other for females, both of which will provide accommodation for eighty-four patients, with the necessary kitchens and offices. At the southern end of the institution, entirely separate, there is to be added a maternity ward providing for twelve patients, and there will also be additional rooms in which electrical treatment will be given. The contractor is Mr. F. Corke, the architects being Messrs. Rake & Cogswell.

PROPOSED MUNICIPAL IMPROVEMENTS, MEXBOROUGH.—On the 13th inst., at the Market Hall, Mexborough, Mr. W. North, M.Inst.C.E., Local Government Board Inspector, held an inquiry in respect to the Urban Council's application for sanction to borrow 450*l.* for the erection of a new fire-station and 1,120*l.* for market purposes. Mr. George F. Carter, Surveyor, dealing with the fire-station loan, gave a detailed statement as to the size and accommodation of the proposed building. The Council had accepted a tender for the erection of a building of 423*l.* 13s. Regarding the further application in respect to the market extensions, Mr. Carter stated that the Council had accepted a tender for the completion of the work, which amounted to 1,173*l.*

PROPOSED CONCERT-HALL, HARROGATE.—Plans have been submitted for approval to the Harrogate Corporation by the Harrogate Concert-hall Company for a new concert-hall and theatre at the bottom of Commercial-street, with seating accommodation for 1,000 persons. The plans are by Mr. J. Houfe, architect, of Harrogate and Wetherby.

CATTLE MARKET, ALNWICK.—A new cattle market and auction mart have been erected in the Wagon Way, Alnwick. The work has been carried out under the supervision of Mr. Geoffrey Wilson, the Town Surveyor, who also prepared the plans and specifications. The clerk of the works has been Mr. Mark Jones, of Middlesbrough. The chief contractors were Messrs. J. & G. Green, of Alnwick and Warkworth, and the Alnwick Foundry Company.

## TRADE NEWS.

The Anglo-American Rubber Company have secured the contract for laying the ground floor of the new Hamburg-Amerika offices in Cockspur-street, and Messrs. Dewar's new premises in the Haymarket with their interlocking rubber tiling.

The sanitary fittings at the Piccadilly Hotel, shortly to be opened, have been supplied by Messrs. Doulton & Co. The closets are of their siphonic pattern, the baths of white vitreous porcelain enamelled iron, and the lavatories marble. The firm have also received the order for the complete lavatory installation at the Esplanade Hotel and Restaurant, Hamburg, to be opened this spring.

Large additional accommodation has been added to the late Somersetshire Bank of Stuckey's, Taunton. The work has been carried out by Mr. H. J. Spiller, from the plans of Messrs. Oatley & Lawrence, of Bristol, in Monks Park stone from the Bath Stone Firms, Ltd.

The Improved Wood Pavement Company have just laid 7,000 sq. yds. of creosoted deal paving in Queen Victoria-street, in six days, doing the work in half widths. The Company have contracts in hand for over 70,000 sq. yds., including some of the principal London thoroughfares, all with creosoted Swedish yellow deal.

At the Victoria Flour Mills, Grimsby, belonging to Messrs. Wm. Marshall & Sons, there has just been installed a powerful stationary steam fire-pump of latest design, with a capacity of 600 gallons per minute. This pump, which is one of Messrs. Merryweather's "Midland" pattern, is arranged to be worked by steam from the flour mills' boiler, and will pump through a system of fire-mains running throughout the buildings. It replaces a smaller steam-pump which was supplied by the same firm twenty years ago, and has in the meantime done good service. A pump of larger capacity has, however, been necessitated owing to Messrs. Marshall's premises having been considerably enlarged in the interim.

Messrs. Truman, Hanbury, & Buxton, Ltd., are building a new bottling store at Tottenham. Mr. H. Seymour Couchman is the architect. The fire-resisting floors are by Messrs. Mark Fawcett & Co., of Westminster.

The Executive Council of the Scottish National Exhibition, Edinburgh, have accepted the tender of Messrs. James Boyd & Sons, horticultural builders and heating engineers, Paisley, to erect a large permanent winter-garden at Saughton Park. The building will be carried out principally in teak wood, and will have an imposing appearance, the dimensions being, length 100 ft. by 55 ft., rising to a height of about 32 ft. to top of large lantern roof. There will be an octagonal vestibule in centre of front, with four lean-to greenhouses attached. The whole will be fitted up with a hot-water heating installation. Ladies and gentlemen's lavatories will be connected to main building by a long corridor.

The British Flooring Company (W. A. Osborne), London, have secured a third contract for the Cementolith jointless floor at the Assay Office, Birmingham, and a large marble tile contract at Moxhall Hall, both for Messrs. Ewen Harper and Brother, architects. Also contracts for mosaic, marble terrazzo-parquet and wood-block floors at Edmonton, Gorseinon, Weybridge, etc., and for wood blocks, parquet, etc., at St. James's Church, Great Yarmouth, Messrs. Olley and Howard architects; and have appointed Messrs. Chadwick & Rayner, Talbot-place, Dublin, their Irish agents.

# Sanitary and Engineering News.

MANCHESTER SHIP CANAL.—The Engineer's report as to works states that the deepening of the Ship Canal to 28 ft. up to the Mode Wheel Locks is practically complete, and the deepening work in the Manchester Docks has been begun. The formation of the pumping installations at three of the sets of locks is making good progress. The leading jetty below the central pier at Mode Wheel Locks has been completed, that below Barton Locks is almost finished, and that below Irlam Locks is well advanced. The jetty at Latchford Locks will now be put in hand. The works for the protection of the flood sluices at Mode Wheel and Barton are making good progress. An additional storage-ground for timber has been formed at Weaste. A new shed for the storage of straw near No. 9 dock, and an addition to the shed at dock No. 1 at Pomona have been completed and are in use. Additional railway sidings at Partington and at the docks have been completed and are in use.

HARWICH HARBOUR.—In addition to the important extension works at Parkeston Quay now in progress by the Great Eastern Railway, it is probable that shipping facilities in Harwich Harbour will be increased by the construction of a new tidal dock with the area of 30 acres, and two graving docks measuring 800 ft. by 100 ft., and 350 ft. by 50 ft., respectively. The proposed works include the formation of an embankment extending from the eastern end of Parkeston Quay so as to enclose a site of 300 acres on the foreshore of the River Stone. The new dock will provide nearly 5,000 lin. ft. of quays in communication with the Great Eastern Railway system, and the result of the project will doubtless be to attract a good deal of Continental traffic at present finding its way into the Port of London.

RIVER BRIDGE, JUSTINHAUGH, N.B.—A new girder bridge has been constructed over the River Southesk at Justinhaugh. The bridge consists of a steel superstructure on masonry abutments. The girders, which cross the Esk in a single span of 110 ft., are of the "bow-string" type, and a clear width of 20 ft. has been given. The steel work has been supplied and erected by the Motherwell Bridge Company, Ltd., of Motherwell, and Mr. Alexander Reid, of Arbroath, has been responsible for the masonry and road approaches; while Mr. Andrew Henderson, Forfar, has charge of the painting work. The bridge and approaches have been designed by Messrs. Crouch & Hogg, MM.Inst.C.E., Glasgow, and the cost has been about 3,000*l.*

THE PROPOSED SEWERAGE WORKS AT WALKER.—A Local Government Board inquiry was held recently in the Newcastle Town Hall relative to an application by the City Council for sanction to borrow 5,663*l.* for sewage works at Walker, where an exhibition of cottages is to be held. The Inspector was Mr. P. M. Crossthwaite, M.Inst.C.E., and among those present at the inquiry were Mr. C. R. S. Kirkpatrick, City Engineer of Newcastle, and Mr. F. H. Holford, Surveyor.

PROPOSED EXTENSIONS TO THE KEIGHLEY SEWAGE WORKS.—On the 11th inst. Mr. A. A. G. Malet, M.Inst.C.E., Inspector to the Local Government Board, held an inquiry at the Keighley Town Hall into the application of the Keighley Corporation for power to borrow 26,500*l.* for works of sewerage and sewage disposal. Mr. W. Fowlds, Borough Engineer, gave particulars of the scheme. He explained that, allowing for an increase in population of 500 per year for ten years, the estimated daily dry-weather flow at the new works would be 1,913,000 gallons. It was proposed to treat the sewage bacterially, and to have a tank capacity of twenty-four hours' storage. The scheme provides for the extension of the existing high-level outfall sewer in Airedale-road, with a capacity of 6,759,000 gallons per day, at a cost of 2,770*l.*, and the provision of four sets of settling tanks, where the sewage will be subjected to septic action, and of twelve continuous bacteria beds.

PROPOSED REFUSE DESTRUCTOR, GAINSBOROUGH.—On the 14th inst. Mr. A. G. Mallett, M.Inst.C.E., Inspector of the Local Government Board, held an inquiry into the proposal of the Gainsborough Urban Council to apply for a loan of 7,000*l.* for the purpose of erecting a refuse destructor, and for 379*l.* to make a road leading to the proposed works which are to be erected, if sanction is obtained, on the Trent bank, near to North Warren. The Surveyor and Mr. Meldrum (the contractor) were among those who gave evidence.

SEWAGE SCHEME, CRIEFF.—A scheme for the disposal and purification of the sewage of Crieff is about to be undertaken by Crieff Town Council, at an estimated cost of about 14,000*l.* At present the sewage is treated by means of irrigation on various fields, but the system now about to be proceeded with has for its object not only the disposal on a more comprehensive scale, but the purification of the sewage by an up-to-date method. The Council have acquired a piece of ground situated on the south side of the River Earn, at a place known as Dargill Island, which is sufficiently low for the sewage to reach it by gravitation. The scheme has been designed by Mr. Gilbert Thomson, civil engineer, Glasgow.

SANITARY CO-OPERATION IN THE WEST RIDING.—The Local Government Board have issued a report by Dr. R. Farrer on the question of the adequacy of the salaries paid to medical officers and inspectors of nuisances in small sanitary districts. The report deals with the urban districts of Emley, Farnley Tyas, Gunthwaite-and-Ingbirchworth, Hoylandswaine, Thurstonland, all near Huddersfield. It states that in the Emley urban district, with a population of 1,455, principally engaged in coal-mining, the Council should pay attention to the condition of the cowsheds. The house drainage is stated to be satisfactory. In the case of the Farnley Tyas urban district, with a population of 500, which is almost wholly agricultural, the Inspector stated that attention should be paid to certain houses which are at present without a proper water supply. In the Gunthwaite and Ingbirchworth urban district, which has a population of 350, mostly engaged in agriculture, the report recommends that a system of sewerage be provided for the houses at the north-western end of Ingbirchworth village. The Hoylandswaine urban district, with a population of 620, principally composed of small farmers and agricultural labourers, is

stated to afford little reason for complaint so far as its housing accommodation is concerned, there being no instance of overcrowding. In conclusion the Inspector says that from an administrative standpoint it is much to be regretted that paltry districts such as the foregoing should have been allowed to acquire urban status. With a view to more systematic and efficient sanitary administration he suggests that small urban districts in the West Riding should be combined into groups, each of which would form a sanitary district.

INDUSTRIAL HYGIENE.—The Council of the Royal Society of Arts, acting on the report of a committee of judges, have awarded the gold medal offered by the Society, under the Shaw Trust for Industrial Hygiene, to Professor William Galloway, "In recognition of his valuable researches into the action of coal dust in colliery explosions, the outcome of which researches has been the provision of means by which the risk of such accidents is materially diminished, and a consequent great saving of human life effected."

## Foreign.

FRANCE.—The Académie des Beaux-Arts has just given out the subjects for the Roux Competition, which will take place for the first time this year. The sculptors are to execute an alto-relief on the subject "Ou Poème sur l'Hiver de la Vie," and the architects are to furnish a design for a Travellers' Hotel of the first class in a capital city.——It is proposed to remove the equestrian group of Charlemagne, now on the Place Notre Dame, to the Place Vauban, in front of the church of the Invalides. It is also proposed, before long, to rebuild the Pont Notre Dame.——M. Lelaunier has been elected President for 1908 of the Society of Architects of Havre. M. Michel has been elected President of the Society of Architects of La Marne, M. Bernard President of the Society of La Loire, and M. Colard President of the Society of Architects of La Haute Saône.——A committee has been formed to raise a monument to Rousseau at Ermenonville; and a monument to Barbey d'Aurevilly is to be erected by public subscription at Saint-Sauveur-le-Vicomte (Marne).——The municipality of Angoulême have voted 1,185,000 francs for works of street improvement and architecture, including the erection of a group of new schools and the purchase by the town of the ancient bishops palace.——The Mairie of Dinan is to be transferred to the ancient Château of the Duchesse Anne de Bretagne.——The Conseil-Général of the Department of Var have voted a sum of 1,240,000 francs to the reconstruction of the Palais de Justice at Toulon.——The death is announced, at the age of 49, of M. Marcel R. Renvoize, architect, of Chartres. He was a pupil of MM. Lefort, Roblot, & Pascal, and a member since 1899 of the Société Centrale.——The death is also announced, at the age of 76, of M. Jean Bourgoin, architect, who accompanied Mariette Bey to Egypt, and after the death of the latter, devoted himself entirely to the study of Arab art. He produced several important works: "Théorie de l'Ornament"; "Grammaire Elementaire de l'Ornament"; "Précis de l'Art Arabe"; and various architectural and artistic studies.——A monument to the memory of Carpeaux is to be placed in the Tuileries Garden, consisting of a bronze bust by M. Fagel, on a granite stele in which will be inserted a medallion by M. Charles Carpeaux, son of the great sculptor.——The Société Nationale des Beaux-Arts, in conjunction with the new "Direction" of the Opera, have opened a competition in designs for scenery and decoration. The subject given is the last act of Saint-Saens's "Samson and Delila." The first premiated design will be carried out at the Opera.——The Department of Fine Art has acquired some of the land bordering on the ancient Abbey at Mont-Michel, in order to prevent the building of houses which would spoil the view of the Abbey.——The Municipal Council of Orléans have bought the ancient "Seminaire" of the city, in order to transform it into a modern school, at a cost of 388,000 francs.——M. Forien, architect, of Besançon, has been commissioned to carry out a new post and telegraph office in that town.——The Municipality of Lyons intend to devote a sum of 30 million francs to various town improvements, including new schools, an abattoir, an orphanage, etc.——The Minister of Instruction has appointed an archæological commission for Indo-China, which is to occupy itself with the preservation of the historic monuments of the country.——A museum of modern engravings is being arranged in the basement rooms of the Petit Palais at Paris; to include engravings, etchings, and lithographs.——The death is announced, at the age of 81, of M. Edouard Dumont, architect, and member of the Société Centrale since 1857.

GERMANY.—The new Grand Ducal Theatre, Weimar, is built on the site of the first playhouse built there in 1779. It was opened on January 11, eleven months after the last performance given in the old house. The main façade is of roughly-dressed sandstone, and the other elevations of rough-cast. Professor Littmann, of Munich, designed the new theatre which cost 2,000,000 marks, or 1847·85 marks per seat.——A great deal of money as well as energy is being expended in Germany for practical and scientific experiments, with a view to hastening the development of a ferro-concrete style in building. Last year the Government and two societies contributed 136,000 marks to this end, and during the next four years a sum of 380,000 marks has been promised to continue the work.——The Royal Public School, Rastenburg, was opened last April. It was built from designs prepared in the Public Works Offices, and cost 420,500 marks.——The picturesque old town of Goslar has been robbed of much of its charm during the last ten years. The little river on which it stands has been vaulted over, the old moat has been filled in with the ruins of the city wall and built over with modern villas, and flat-roofed, stucco palaces erected alongside fine old timber houses dating from 1526. The chief characteristic of Goslar architecture is the immense steep-pitched slate roof, whose rainbow-hued patina, donned with the centuries, sparkles and glistens in the sunshine. Modern vandalism, for economical reasons, replaces this with flat-pitched, glaring red tiles. The masonry houses, dating from Romanesque times to the XVIIIth century, are also of great beauty, with cornices and door and window dressings richly carved. The town is at length taking steps to prevent further demolitions by purchasing portions of the town walls and towers, and has recently spent 100,000 marks in order to rescue two half-timber houses that were threatened with destruction. Last year a law was passed against the disfigurement of the town and its surroundings, and the authorities intend to enforce it rigorously. Private individuals are also developing an interest in their old dwellings, and painting the timber-work, as was usual in days gone by.——It is proposed to increase the water storage of Königsberg by building a new reservoir at Willgaiten. Its capacity would be 1·25 million cubic metres, and, including the site, would cost 525,000 marks. The project was drawn up by Herr E. Kuck, the Government contractor, and is to be carried out during this and the following year. The actual building cost per cubic metre is 25 pfennig.——German wireless telegraphy has achieved yet another success. The station at Nauen kept up communication with a Hamburg-South American steamship till it reached Teneriffe. The last message from Nauen was received at Sta. Cruz at a distance of 3,700 kilometres.——In the competition for a decorative treatment of the retaining wall to the Möhne Valley reservoir, the first premium of 2,000 marks was awarded to Herr Franz Brantzky, of Cologne; the second of 1,500 marks to Herr Fritz Brauning, of Potsdam. Seventy-two designs were entered. The problem to be solved was the suitable artistic treatment of a wall, 400 metres long, rising 30 metres above the valley level. The reservoir has a capacity of 130 million cubic metres, and a water surface of 10·3 square kilometres. An electric station is also to be built which will yield 12 million kilowatt hours, and provide the towns of Werl and Lippstadt and the intermediate villages with power. The total cost is estimated at 17·7 million marks, and the works are expected to occupy five years.——Eighty-seven designs were sent in for the competition for a museum in Wiesbaden. The first premium of 3,000 marks was unanimously awarded to Messrs. Hummel & Förstner, of Stuttgart.——In the competition for a public swimming-bath, Altona, three prizes of the value of 3,300 marks each were awarded to Herr Alfred Meyer, of Berlin; Messrs. W. Fuchs & Henes, of Stuttgart; and Messrs. Haller & Krager, of Heidelberg.——The German Garden City Company is so much struck by the success of the experiment at Letchworth, that it is passing from words to deeds, and urging manufacturers to found a garden city on the outskirts of Berlin. The Company is in a position to lay its hands on the necessary capital as soon as large manufacturers declare themselves ready to move their business. It is proposed to found another garden city in the north of Germany as soon as a suitable site can be decided on.

AUSTRIA.—The Buda-Pesth telephone office, which was built in 1904 to accommodate 10,000 subscribers, had to be enlarged recently to meet further demands. It is now capable of serving 8,000 more instruments.——Eleven designs were submitted for the restoration of Lemberg Town Hall. The first premium was awarded to Roman Bandniski, of Cracow.——The Society of Decorative Arts, Vienna, is organising, in connexion with the Imperial Jubilee, an exhibition of notable national works of art. Only Austrian artists can exhibit in this patriotic exhibition. Monetary prizes and medals from six different sources will be awarded.——The Viennese sculptor, Josef Tuch, has been commissioned to design the memorial to be erected in Vienna-Neustadt in commemoration of the Emperor's Jubilee. The sculptor, Seiche, has been chosen to design the memorial for Teplitz.——The Society of Austrian Engineers and Architects has organised a Commission to experiment on the rational and economic use of ferro-concrete. The Austrian Home Office has contributed 5,000 francs towards the estimated cost of these experiments, *i.e.*, 35,000 francs.——In December was opened the new town hall in Botzen, which was built from the joint designs of Herr Wilh. Kurschner, of Botzen, and Professor K. Hocheder, of Munich. The style adopted was Barocco as developed in the Tyrol.

SWITZERLAND.—Last July was opened in St. Moritz the Savoy Club, designed by Messrs. Val Koch & Seiler, of St. Moritz-Dorf. As the club is intended to meet the requirements of English visitors, the architects spent some time in London in order to study English clubs and English customs. The elevations of the building bear the characteristics of the English style of the end of last century, and are kept unpretentious and simple, so as to harmonise with their rural surroundings.

ITALY.—The daily papers were incorrect when they stated that the Villa Albani, outside the Porta Salaria, Rome, had been sold to a building company as a site for the erection of villas. The Villa, like the Palace of the Torlonias, is inalienable. It was built in the XVIIIth century by the architect Carlo Marchioni for Cardinal Alexander Albani, who, assisted by the leading archæologists of the day, filled it with famous antique works of art. Winckelmann took a prominent part in the arrangement of the art treasures.

DENMARK.—For many years a windmill in Askov was used for the production of hydrogen and oxygen gases from water; the gases were stored and used for limelight. The Danish Government has rebuilt this mill for experimental purposes, and provided it with four wings 11·4 metres long, 2·5 metres broad, with the axle 18 metres above the ground. The mill drives two dynamos of 16 kilowatts each, whose power is used partly for the decomposition of water, but chiefly for charging a battery of accumulators capable of giving 100 ampere hours. The accumulator will feed 710 lamps and eight motors, which together develop 21 h.p. The director of this experimental mill is Professor Paul la Cour, who has carried out a number of theoretical as well as practical experiments. At the present moment there are about thirty other such electric generating-stations in Denmark which give satisfactory results. The reserve motive power is, in the most cases, supplied by a petrol motor, but this is rarely used.

SIAM.—From the beginnings of railroad building in Siam, German methods and German money have been employed. The undertaking is a brilliant success, as last year the increase in travellers on the lines over the previous year was 18 per cent., and the goods traffic increased by one-fifth. To the existing 575 kilometres of line, 202 more are about to be added, which will connect Bankok with Petrin and Paknam with Phitsalok. Of the total number of engines in use—*i.e.*, forty-two—thirty-two are of German manufacture, and the remainder are English. The rolling-stock consists of 132 passenger coaches and 405 trucks; the number of employees amounts to 1,938. Iron sleepers were laid down as an experiment on the last 7 kilometres of line recently built, but it is doubtful whether the greater strength and durability will justify the increased cost, which is four times that of wooden sleepers.

## Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The firm of Messrs. Berrington, Son, & Martin, civil engineers (Wolverhampton), is now that of Messrs. Berrington, Son, & Watney. Mr. Gerard N. Watney, A.M.Inst.C.E., having taken the place in the firm of Mr. A. G. Martin.——Messrs. Vickers & Field, Ltd., makers of "Wirebitu" Damp Course, are centralising their offices and works at "Wirebitu" Wharf, 36, Graham-street, City-road Basin, N., as from January 15.

ROYAL PHILOSOPHICAL SOCIETY OF GLASGOW.—Mr. Samuel Smith recently delivered a lecture on "The Movement of Air in Buildings" to the architectural section of the Royal Philo-

sophical Society of Glasgow. The lecturer introduced his subject by referring to the necessity for air being moved in buildings, and said the movement was caused by four methods —diffusion, aspiration, heat, and mechanical power. To show the inefficiency of heat to cause the movement of air, the lecturer said that a fan at an expenditure of fifty-eight heat units would do the same work in ten minutes as would be done by heat in thirty minutes by an expenditure of over 12,000 heat units. This pointed to the necessity for the introduction of mechanical ventilation, and no room or building where a body of people was gathered together, or which was too large to be heated by the radient heat from a fire, should be left dependent on any of the so-called natural systems of ventilation for the movement of the air it contained. The various systems of mechanical ventilation were described in detail, attention being directed to the point that the quantity of air moved did not determine whether the ventilation of the room or building was perfect or not.

SHIP HOTEL, GREENWICH.—This famous house was closed on January 18. The property, leased at 500*l.* per annum, with 50*l.* rental for the riverside lawn, was offered for sale on February 16, 1904, and withdrawn after a bid of 13,400*l.*, the lease being for a term of thirty-one years then unexpired. The Ministerial white-bait dinners had their origin in Sir Robert Preston's invitations to members of the Cabinet to his house at Dagenham; after a while William Pitt removed the scene of the annual gathering to Greenwich.

DEMOLITION OF AN OLD NEWCASTLE BRIDGE.—An interesting feature in older Newcastle has just disappeared with the demolition of the old stone bridge which used to cross the Ouseburn at its mouth, just where it enters the Tyne. This bridge, which was of ancient form, was, it is said, some 300 years old, and for many generations was the only means of crossing from the quay to the regions east of it. When the new Glasshouse Bridge was built, some years ago, the communication was improved; but the old stone arch continued to serve a useful purpose, and was much used. A year or two ago the City Council resolved upon a big scheme of quay extension, involving the pulling down of a good deal of old property to the eastward of the bridge, and to connect the new quay with the existing quay, the old stone bridge was inadequate, and it has had to make way for a modern structure of steel, which has already been sent up to connect the two quays. The old stone arch was removed by the use of gelignite, under the superintendence of the City Engineer.—*Newcastle Daily Chronicle.*

ROTHESAY IMPROVEMENT SCHEMES.—Among questions engaging municipal attention in Rothesay at present is that of providing suitable shelter for visitors in inclement weather. It is proposed to have a plebiscite with regard to the building of a pavilion or winter garden in order that the ratepayers may give their voice on the matter. Meanwhile there is a tentative scheme for the erection of such a building, at an approximate cost of 5,000*l.* Plans have been prepared by Messrs. David King & Co., Keppoch Ironworks, Glasgow, and these provide for a building of steel and glass which would accommodate about 2,000 persons.

DISCOVERIES AT NOTTINGHAM CASTLE.—The alterations now in progress in the grounds of Nottingham Castle have brought to light portions of the old wall built in the early part of the XIVth century to surround the stronghold which occupied the site of the present building, which was erected as a mansion towards the end of the XVIIth century. The new wall which is being built around the ground recently acquired to the left of the entrance gateway, on the edge of the rock overlooking the Trip to Jerusalem Inn, follows very nearly the line of the Edwardian enclosure, and the excavations have laid bare portions of this masonry in good preservation. The bastions of the old wall have always been visible, but they were cased with brick a good many years ago. To save this relic from total oblivion a section of the old wall has been left uncovered, and the new wall built round it, so as to incorporate it and preserve it.

DRAWINGS AND BOOK SALES.—Recent sales of books and drawings by Messrs. Puttick & Simpson and Messrs. Hodgson & Co., comprise Young's "Night Thoughts," 1797, with all Blake's designs coloured by himself, and the fly-leaf inscribed, "This copy was coloured for me by Mr. Blake, W.E."—52*l.* (Bumpus); "Engravings from the choicest works of Sir Thomas Lawrence," fifty plates, 1835-44—50*l.* (Sotheran); Turner's "Liber Studiorum," 1808-16, sixtv-six mezzotint plates in sepia—60*l.* (Tregaskis); D. and S. Lysons' "Magna Britannia," 1806-22, with a very large number of inserted drawings in water-colour and pencil, and engravings, forming ten volumes, imperial 4to—72*l.* (Bumpus); J. Smith's "Catalogue Raisonné of the Works of the Dutch, Flemish, and French Painters," 1829-42, nine volumes —20*l.* (Hornstein); "Imitations of Original Drawings by Hans Holbein," 1792-3—31*l.* (Leighton); W. H. Pyne's "Royal Residences," 1819, with 100 highly-finished coloured engravings, on large paper—18*l.* 15s. (Edwards); and an uncommon collection of 136 coloured original Chinese drawings in two atlas folio volumes —25*l.* 10s. (Maggs).

BEQUESTS BY THE LATE MR. C. L. SPARKES.—Mr. Sparkes, the eminent art teacher at the Lambeth and South Kensington Schools, has left estate valued at 12,771*l.* gross, with net personalty 9,632*l.* He has bequeathed to the trustees of the National Gallery for the Tate Collection five pictures painted by his late wife, and directs that, subject to certain life interests, the proceeds of the sale of his Heathside and Moon Hall estates shall be vested in the Royal Academy in trust for the benefit of women students in the schools, by name of the Catherine Adeline Sparkes Trust. In the event of the National Gallery trustees declining the bequest, the pictures are to be given to the Wolverhampton, Preston, Birmingham, and Nottingham Art Galleries.

THE DUKE OF SUTHERLAND'S PICTURES.—A portion of the Duke of Sutherland's collection, removed from Stafford House, Trentham Hall, and Lilleshall House, was offered for sale in Christie's rooms on February 8. Though the paintings did not consist of the chief treasures, they included Kneller's portrait of Queen Anne —52 guineas, Rubens' equestrian portrait of Philip IV. of Spain—130 guineas; Murillo's portrait of Archbishop Spinola; Lely's Barbara, Duchess of Cleveland, Queen Mary II., and Anne Hyde, first wife of King James II.; Lawrence's Duchess of Norfolk (Charlotte Sophia, daughter of George, first Duke of Sutherland)—820 guineas; and Heuss' Lady Constance (daughter of the second Duke)—painted in her girlhood—who married the first Duke of Westminster; together with examples of Etty, Westall, Stanfield, Danby, a portrait by Van Dyck, and Andrea del Sarto's Madonna and Child with Saint John—650 guineas. An equestrian portrait by Van Dyck was bought by Mr. Partridge for 2,100 guineas.

PRESERVATION OF ANCIENT MONUMENTS.—Professor G. Baldwin Brown, of Edinburgh University, lectured in the Queen's Hall, Edinburgh, on the 16th inst., under the auspices of the Sunday Society of that city, on "Old Edinburgh and the Lesson of Crosby Hall." Professor Brown said the architectural relics of the city, with their historical associations, were among the attractions of Edinburgh, which intelligent strangers found of especial interest. They were in that sense civic assets that had really a commercial as well as an artistic and historical value. Their preservation was from all these points of view a matter of importance, for they were a class of possessions that when once destroyed could never again be restored. Professor Brown, in narrating the story of Crosby Hall, in Bishopsgate, which has just been demolished, showed that its preservation as a national monument could have been accomplished at a comparatively trifling cost in 1830. The lesson of Crosby Hall, he said, was one very easy to read if they were to preserve these interesting historical links with the past.

THE WATERING OF GARDENS.—At a meeting of the Metropolitan Water Board held on Friday last week, the Appeal and Assessment Committee presented a report on the question of the Board's future policy with regard to the charge for gardens. The report stated that under the new Act (sect. 25) "domestic purposes" did not include the watering of gardens by means of any outside tap, or any hose, tube, pipe, sprinkler, or other like apparatus, and it therefore became necessary to prescribe the charges which should be made for this class of consumption. The practice varied considerably in the different districts, and should be reduced to uniformity in view of the fact that the new Act prescribed uniformity of treatment of all consumers under like circumstances. There were three ways of charging for garden supplies, namely:—(*a*) by meter; (*b*) according to the area of the garden; and (*c*) according to the ratable value of the premises. On the whole, a combination of ratable value and meter might perhaps be the most convenient, and, as the Finance Committee concurred, the Committee recommended:—"(1) That, while reserving power to charge by meter or an area, the following scale be adopted for garden supplies where the consumption of water and the size of the garden are not in the opinion of the Board exceptional, viz.: Ratable value not exceeding 50*l.*, 10s. per season; ratable value not exceeding 100*l.*, 15s. per season; ratable value not exceeding 200*l.*, 20s. per season; (2) where the premises exceed 200*l.* ratable value, or a sprinkler is used, the garden supply to be separately afforded by meter at the trade scale, but without imposing a *minimum* rent." The recommendations were adopted. It was also decided that the supplies to public sanitary conveniences, cattle-troughs and drinking fountains should be supplied at the meter rates prescribed by sect. 16 of the Charges Act, each supply being treated separately, but without the imposition of a *minimum* rent per quarter.

CROSBY HALL.—The demolition of Crosby Hall has now been completed. The Chartered Bank of India, Australia, and China is spending about 1,000*l.*, in the marking, removal, and storage of the historical portions of the building with a view to the possible re-erection of the structure on another site, the estimated expense of which is believed to be about 3,000*l.* Applications have been received from two or three private persons for permission to undertake the reconstruction of the old hall, but no action has been, or will be, taken, we understand, as it is desired that the historic remains should be, if possible, acquired by some public body for reconstruction in London.—*Times.*

VICTORIA MEMORIAL, DUBLIN.—On the 15th inst. the memorial to the late Queen Victoria in Dublin was unveiled. The memorial, which stands in the quadrangle in front of Leinster House, consists of a statue of the Queen cast in bronze on a pedestal, the drum of which is supported by groups of figures. The sculptor was Mr. John Hughes, R.H.A., and the execution of the work was entrusted entirely to French hands, Messrs. Vienne, of Paris.

ST MARYLEBONE BOROUGH COUNCIL.—At the sitting of this Council on Thursday last week the estimates for the year showed that 67,075*l.* would be required by the Works Committee, as against 72,217*l.* last year. The Finance Committee point out that the saving in this department is mainly under the heads of paving works and sewers and drains. The Works Committee reported having determined to recoat with macadam (twice) Park-road and Albert-road.

LIVERPOOL CATHEDRAL.—At a recent meeting of the executive of the Liverpool Cathedral Committee, the subcommittee charged with the selection of an artist to execute the windows for the Lady chapel reported that they had seen the work of some of the most important artists in London, and had finally asked four of their number to send in cartoons in competition. The clerk of the works submitted his report up to February 6. It showed satisfactory progress in respect of the cathedral works. The average number of men employed not entirely on the cathedral site was 226.

ACOUSTICS AND ARCHITECTURE.—A meeting was recently held, under the joint auspices of the Architectural Section of the Royal Philosophical Society of Glasgow and of the Associates' Section of the Institute of Architects. The subject under discussion was "Acoustics in Relation to Buildings." Mr. Cullen presided. Mr. Blyth read a paper on the scientific aspect of the subject, dealing with the theoretical principles connected with sound so far as it applied to buildings, especially such phenomena as echo, reverberation, and resonance. Mr. David Barclay discussed the subject from the practical point of view of the architect. He said he had always found it satisfactory to consider the deflection of sound currents as analogous to the cushioning of a ball on a billiard-table. In the case of a church a short transept was dangerous if the best acoustics were to be obtained, because it produced echoes by deflecting the sounds earlier than those which reached the far end of the building. A concave end behind a platform was the worst form of construction from the point of view of acoustics, because the sounds were deflected into a central point instead of being deflected and radiating outwards in parallel lines throughout the building.

THE SCOTS GREYS' MEMORIAL, EDINBURGH.—The stone slab bearing the inscription on the Scots Greys' Memorial having become damaged by the weather, Mr. Birnie Rhind, R.S.A., has prepared a bronze tablet to take its place, and the work of affixing this has just been completed.

THE "ILLUMINATING ENGINEER."—This is the title of yet another technical organ in the form of a monthly magazine. In the present day artificial illumination is clearly a branch of engineering, and it is quite appropriate that it should be represented specially by a publication such as our latest contemporary. Several articles in the specimen copy we have received illustrate the abstruse character of the principles underlying the practice of illumination. Mr. A. P. Trotter, Electrical Adviser to the Board of Trade, discusses the distribution and measurement of illumination; Dr. H. Lux contributes some notes on "The Efficiency of the Most Common Sources of Light," Dr. C. V. Drysdale treats of "The Production and Utilisation of Light," there is a very practical article by Mr. John D. Mackenzie on "The Economical Illumination of Display Windows," and other equally useful contributions are also presented.

CONTEMPLATED ROAD WORKS IN CAMBERWELL.—On Wednesday last week the Borough Council of Camberwell decided to give the necessary notices for taking over a part of Forest Hill-road with a view to paving the same.——It was reported that the attention of the London County Council had been called to the fact that in March, 1903, the County Council gave consent to the continuation of a road leading out of Forest Hill-road, and known as Ryedale-road, subject to the applicants opening up Herne-terrace and Balchier-road, then existing *culs-de-sac*. The applicants had only continued the road to a point half-way between Forest Hill-road and Herne-terrace. The Clerk to the County Council had written stating that steps would be taken to enforce the carrying out of the conditions as quickly as possible.——It was resolved to approve of the engineer's estimate for the paving of Carlton-road.

WOOD-PAVING AT CLAPHAM.—On Wednesday last week the Highways Committee of the Battersea Borough Council reported having received many complaints from the residents in Clapham Common, north side, on the subject of the roadway, especially since motor omnibuses had used the route, and asking that the roadway should be paved with wood. The Committee pointed out that the cost of the paving would be, approximately, 9,801*l.* or 12,880*l.*, according as soft or hard wood were used. The Committee recommended that the work should be carried out. At the instance of the Finance Committee it was agreed that the matter should stand over for a time.

COST OF A SUGGESTED HOUSING SCHEME IN HOLBORN.—At the sitting of the Holborn Borough Council on the 12th inst., the Borough Surveyor reported having considered figures relating to the suggested use of the Council's property in Goldsmith-street for the purpose of a housing scheme. The estimate was as follows:—Rent to be received from seventy rooms at, say, 3*s.* 6*d.* per week, 637*l.*; deduct repairs, empties, water rates, and taxes, and wages of superintendent, 338*l.*; repayment of loan of 6,000*l.* on land for eighty years at 3½ per cent., 224*l.* 10*s.*; repayment of loan of 6,000*l.* for erection of buildings for eighty years at 3½ per cent., 224*l.* 10*s.*; total, 787*l.*; estimated loss per annum, 150*l.* It was agreed that for the present no steps be taken with regard to the scheme for the erection of working-class dwellings on the site.

MAINTENANCE OF ASPHALT PAVEMENTS.—The Works Committee of the Holborn Borough Council on Wednesday last week reported having considered a list of the asphalt pavements in the borough at present maintained by the companies by whom they were originally laid under contracts which expire during the present year. They had long been of the opinion that it might be less expensive for the Council to pay for all repairs of asphalt pavements as required, and in several recent instances the Council had taken this course, with results which supported their views. It was agreed that the Council do not enter into further contracts for the maintenance of the asphalt pavements of Bloomsbury-street, Bury-street (from Hart-street to Great Russell-street), Great Russell-street (from Bloomsbury-street to Bloomsbury-square), Great St. Andrew-street, High-street (from New Oxford-street to Denmark-street), Great Queen-street, Store-street, Tottenham Court-road (from New Oxford-street to Store-street), Dyott-street (north of New Oxford-street); Broad-street (from Endell-street to High-street), on the expiry of the present contracts.

SEWER WORKS, STEPNEY.—The Stepney Borough Council on Wednesday last week decided to reconstruct sewers at Commercial-road, Butler-street, and Apsley-street, at an estimated cost of 480*l.*

COMMONS AND FOOTPATHS PRESERVATION SOCIETY.—Lord Eversley presided over the monthly meeting of the Commons and Footpaths Preservation Society, held at 25, Victoria-street, on the 6th inst. It was reported by the chairman that a large number of members of Parliament had ballotted for the Society's Public Rights of Way Bill, and that Mr. R. Winfrey, M.P., had secured the fifteenth position. The Bill was set down for second reading for May 29, and the Society had received promises of support from leading representatives of all parties. The main object of the Bill was to enable the provisions of the Prescription Act to be used in connexion with the proof of highways, and to simplify and cheapen litigation in footpath cases. It was decided to prepare a Bill to facilitate the regulation of rural commons, and Sir John Brunner consented to introduce the Bill on the Society's behalf. It was pointed out that in many neighbourhoods commons formed the camping-grounds of vagrants who could not be satisfactorily dealt with without by-laws made under a regulation scheme, and it was felt by the Society that the time had arrived when privileges of compulsory regulation, similar to those enjoyed by the metropolis since 1866, with proper safeguards of the right of the lord of the manor and commoners, should be extended to the whole of the country. The solicitor reported that eleven railway and water Bills now before Parliament affected common lands and open spaces, the total areas proposed to be absorbed exceeding 1,614 acres. Twenty-one other Bills affected commons and rights of way. It was decided to press for the insertion in the Burnley Corporation, Monmouthshire County Council, and Pontypridd Waterworks Bills, under which large areas of common lands have been scheduled, of clauses to provide for the public right of access to the commons. It was also decided to support the local opposition to the Fishguard and Rosslare Railways and Harbours Bill, which seeks to absorb the whole of Goodwick Moor; and to oppose, if necessary, the London and Windsor Motor Roads, Tramroads, and Tramways Bill, which would involve serious injury to Ravenscourt Park, Stamford Brook, and Back Common, Chiswick, and other open spaces. The Secretary reported that the Society was dealing with 120 cases of encroachment on commons or obstructions of rights of way, and that since the last meeting several footpaths had been reopened as a result of its efforts. The Society was stated to be arbitrating at the request of landowners and local authorities in three cases, and it was decided to oppose a scheme for the enclosure of Coopers Hill Common, Gloucestershire, a beautiful open space, 136 acres in extent.

PROPOSED STREET IMPROVEMENTS, NOTTINGHAM.—The Nottingham City Council have adopted the Improvement Committee's report, which proposes the scheme for the widening of Greyfriar-gate to 60 ft. and Carrington-street to 70 ft., at a cost of 35,000*l.*

DUKE OF YORK'S SCHOOL, CHELSEA.—A suggestion is made to utilise the buildings of the Duke of York's School as an asylum or hospital for Crimean War and Indian Mutiny veterans. The buildings were erected in 1801-3 by Copland, after plans and designs by John Sanders, and constructed of brick with stone dressings; the principal façade, which is opposite the Guards' playing-ground in Burton's (formerly Great or College) Court, having a deep tetrastyle Doric portico with steps and pediment rising up to above the second floor. The grounds, of some 12 acres, abut upon King's-road. The school, which will shortly migrate to Dover, was founded at the instance of the Duke of York, Commander-in-Chief, second son of George III., as the Royal Military Asylum, and received its later designation when the present Prince of Wales was created Duke of York sixteen years ago.

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.—The Earl of Crewe, Chairman of the Governing Body of the Imperial College of Science and Technology, presided at a meeting recently, at which the following members were present:—Mr. Gerald W. Balfour, Sir Julius C. Wernher, Sir W. H. White, Mr. A. H. D. Acland, Mr. F. G. Ogilvie, C.B., Mr. J. C. G. Sykes, Dr. Glazebrook, Professor Capper, Professor Farmer, Sir H. E. Roscoe, Sir A. W. Rücker, Mr. A. Acland Allen, M.P., Sir C. Kinloch-Cooke, Mr. R. A. Robinson, Sir J. Wolfe Barry, Sir W. S. Prideaux, Sir J. Watney, Viscount Esher, Sir Arthur Bigge, Sir A. Geikie, Professor Gowland, Professor Dalby, Sir Alexander Kennedy, Mr. R. K. Gray, Professor Divers, and Mr. W. McDermott, with Mr. F. E. Douglas (acting Secretary). The Governing Body appointed as Rector of the Imperial College Mr. Henry Taylor Bovey, F.R.S., Dean of the Faculty of Applied Science and Professor of Civil Engineering at McGill University, Montreal, and Honorary Fellow of Queen's College, Cambridge.

# Law Reports.

## ARCHITECT'S ACTION FOR LIBEL AND SLANDER AGAINST BARRISTER.

THE case of Hunt *v.* Schultess Young came before Mr. Justice Darling and a special jury on the 18th inst.—an action by Mr. W. G. Hunt, an architect, to recover damages for alleged libel and slander published and uttered by the defendant. The defences were that the words complained of by the plaintiff were fair comment on a matter of public interest, and that the occasions on which the words complained of were published and uttered were privileged.

Mr. Montague Lush, K.C. (with him Mr. Newbolt), said the action was brought by the plaintiff to recover damages for libel and slander. The plaintiff was an architect, a gentleman of some eminence in his profession, the defendant being a member of the Bar, and who had for many years been practising as a barrister, and who also, at all events, was at the time the slanders and libels were uttered and published, the Chairman of the District Council at Acton. The defendant seemed to have taken a very active part in the public affairs at Acton. The action involved serious questions so far as the plaintiff was concerned, because he was an architect who had been engaged in the erection of important public municipal offices in London—at Kensington and at Shoreditch—and he had been repeatedly charged by the defendant, at public meetings and at interviews with other people, with the bribery of certain officials at Acton, in order to obtain an advantage to himself and get employment at Acton. It was true that the defendant did not justify the libels or the slanders. Defendant was not going to assert before them that what he wrote and said about the plaintiff was true. They would hear that the defendant did invite the plaintiff to come into Court before a jury and lay his grievance before them, while, as a matter of fact, the defendant really attempted to shelter himself by putting upon the record a plea of privilege. He (counsel) was going to contend later on to his Lordship that the occasions upon which the defendant relied were not all privileged, although perhaps one or two were. He was going to ask them, as jurymen, to say that the defendant was not merely discharging a duty he owed to the persons to whom he made the communication, but he had allowed his mind to become so prejudiced and his judgment so warped against the plaintiff when he uttered the words and published the statements complained of, that they unmistakably showed malice towards the plaintiff. The main question for the jury would be, whether the defendant did utter the words the plaintiff said he did, and secondly, if he did so, utter them maliciously towards the plaintiff. The matter out of which the dispute arose commenced some two or three years ago. The plaintiff, as he said, was an architect who had had a great deal of experience in erecting public municipal offices. In 1902 he met a gentleman, named Monson, who was a member of the District Council at the time. Mr. Monson happened to mention that the Council at Acton contemplated building a town hall and public offices. The plaintiff said he should like to compete for it, and there the matter dropped. At the beginning of 1903 Mr. Monson, jun., a son of Mr. Monson, who was also an architect, wrote a letter to the plaintiff which afterwards led to an interview between them. Mr. Monson, jun., suggested that both of them together might compete for the opportunity of being selected as architects for the building. Mr. Monson, jun., said that the plaintiff had, of course, great experience in work of that kind, and that he (Mr. Monson), on the other hand, know something about local requirements. The result was that they arranged that they should share alike the work which would fall upon them as architects and the benefits which would accrue if they were chosen. The plaintiff thereupon sent in an application, which was sent in to the public body at Acton, for liberty to be allowed to compete. He sent it in in February, 1903, and the next month he received a letter from the Clerk to the District Council saying that the Council had selected him as one of the competitors. The plaintiff then went on with the preparation of his plans. There was no limit as to the cost of the buildings put upon him, and after spending some time in the preparation of his plans he sent them in. On November 3, 1903, the plaintiff received a letter from the Clerk to the Council stating that the assessors had awarded the plaintiff the first place in the competition. That being so, the plaintiff was summoned, in January, 1904, to attend a meeting of the Council. His plans were then discussed, and he was then asked by the Council to alter his plans in some way. The plaintiff expressed his willingness to do so, and he submitted his fresh drawings in March, 1904, to the Council. There was then a meeting of the Council on March 18, when a resolution was passed that the recommendation of the Committee should be adopted, and that the plaintiff should be instructed to prepare working drawings and specification for the work. The plaintiff thereupon set to work to make his drawings, which he submitted in July, 1904. Subsequently, the Council instructed the quantity surveyor to take out the quantities in connexion with the work, and later on tenders were sent in and opened, when the cost turned out to be undoubtedly very large. The lowest tender was 80,900*l.*, and the highest 87,000*l.* At this time Mr. Monson, jun., had, in fact, done no work, the plans having been all prepared by the plaintiff. Mr. Monson, jun., wrote to the plaintiff on September 18, 1904, stating that the hour had arrived when his name should be put forward as joint architect in connexion with the new town hall and public offices at Acton. The plaintiff replied to that letter saying he could not agree to that, and stating that

it was too absurd that Mr. Monson should be put forward as joint author of the design when he had not shared the work, the plaintiff also adding that he did not desire to shuffle out of his obligations in the matter, and that he would be willing to agree to some equitable arrangement with regard to the services Mr. Monson had rendered him. The plaintiff thought that Mr. Monson, jun., might have been instrumental through his father in securing him the nomination. Later on Mr. Monson, jun., wrote a letter to the plaintiff stating that he had placed the whole matter between them before an impartial gentleman, and repeating his desire that his name should be given as one of the authors of the design. A long correspondence between them ended in an amicable arrangement under which the plaintiff agreed to pay a certain sum to Mr. Monson, jun., in discharge of his liabilities under this joint arrangement. The jury would hear that under peculiar circumstances the defendant had a long time afterwards fastened on statements in these letters amongst other things, and charged the plaintiff before public meetings and elsewhere with bribery. The plaintiff, in 1905, received payment of 1,500*l.* on account of his fees from the Council. He had prepared elaborate plans and working drawings in connexion with the proposed buildings. Subsequently, it was thought that 80,000*l.* was a large sum to spend on public buildings, and the Council petitioned the Local Government Board to sanction a loan so that the Council might not saddle the ratepayers in one year with the cost, and that the cost might be spread over a term of years; but the Local Government Board refused to sanction the loan on the ground that the scheme had been designed on too elaborate a scale, and suggesting that the District Council should reconsider their proposals. At that time the ratepayers in Acton had become active against such a large sum being spent on public buildings, and the defendant became chairman of an association in Acton called the Ratepayers' Protection Association, and meetings were held in connexion with the matter. Meanwhile the then existing Council, having had that discouragement from the Local Government Board, and knowing of the public feeling about the matter, set to work to alter the scheme and cut down the cost of the buildings. The plaintiff was communicated with on the matter, and later on he agreed to revise his plans to endeavour to meet the wishes of the committee. He reported that, by omitting certain parts of the original scheme the total cost could be reduced from 80,000*l.* to 60,000*l.*, and by making other alterations it could be reduced to 35,000*l.* On May 25, 1906, the plaintiff was informed that his amended plans were accepted. On June 20, 1906, the matter was sent back from the Council and referred back to the committee for further consideration. On June 22 the plaintiff was asked to prepare a report of the accommodation his scheme provided for, and to cube out the cost of his revised plans. Plaintiff did this, and found the cost would be just under 35,000*l.* On July 24 the plaintiff was asked to prepare working drawings for the new plans. When the 1,500*l.* was paid to the plaintiff there was no contract in existence between the plaintiff and the Council which bore upon it the seal of the Corporation. The Ratepayers' Association moved the Local Government Board in the matter, and the auditor surcharged the members of the Council who drew the cheque for the 1,500*l.*, and made them pay it back again out of their own pockets, because they had sanctioned the payment of the money to the plaintiff, there being no sealed contract in existence. Whether that was right or wrong it was not material to discuss; but the conditions under which the competition took place were sealed by the Council. Subsequently, the Local Government Board remitted the 1,500*l.* and allowed it to be paid out of public monies. The plaintiff, when he heard of this, began to get uneasy about his own position. He asked the Clerk to the Council whether it would be advisable for his appointment to be under seal, but the Clerk advised him not to be in too much of a hurry to press for the sealed contract. Later, in October, 1906, the Clerk afterwards wrote to the plaintiff enclosing the sealed agreement for the work which was to be done under the contract for the 80,000*l.* worth of work, and ultimately the plaintiff was paid the balance of 900*l.* which was due to him for his fees under that. The result of it was that when they came to April, 1907, matters stood in this way. There had been a contract entered into between the Council and the plaintiff for the new work for 35,000*l.* April 15 was the last day of the existence of the old Council, and afterwards a new set of councillors were elected. The defendant was elected Chairman of the new body. On April 15 the agreement which had been made between the plaintiff and the Council was coming on before the meeting to have the seal put upon it. The defendant, on the Monday morning, in his capacity of barrister, got a Mr. Crane, another member of the Council and a solicitor, to brief him so that he could apply *ex parte* to Mr. Justice Sutton for an injunction to prevent the Council putting their seal to the contract which had been deliberately and properly entered into with the plaintiff. When the Council met in the evening the injunction was served. That was, no doubt, a masterly move. By getting the seal kept off the contract it became impossible for the plaintiff to have any legal claim to be paid for the services he had honestly rendered for the last year or two.

The new Council, with Mr. Schultess Young as Chairman, had now come into office, and in May Mr. Hunt received a letter telling him that the scheme had been abandoned, so that by this brilliant strategy the Council now had Mr. Hunt's plans for nothing. Mr. Hunt had called on Mr. Schultess Young, and had had an interview with him and other members of the Council. Mr. Schultess Young had offered Mr. Hunt 50*l.* or 100*l.* as a compromise for his fees, pointing out at the same time that he had no claim in law. Mr. Hunt had not accepted it. Mr. Schultess Young had then asked Mr. Hunt if he had a certain Mr. Baldwin as an articled pupil in his office. Mr. Hunt said that he was there, but that he had not accepted a premium when he came to him, as it was not his practice to do so, since he did not undertake to teach his pupils. Mr. Schultess Young then said: "I thought as much; you need not say any more. You have already confirmed my view about Mr. Baldwin." (Mr. Baldwin's father, it appeared, was also a district councillor.) Mr. Hunt said that Mr. Schultess Young was utterly mistaken in his view. In July there was a meeting of the Council, at which Mr. Baldwin took a contrary view to the rest of the Council with regard to Mr. Hunt's fees, with the result that Mr. Schultess Young charged Mr. Hunt with bribery. In August there was a fresh competition, and the plans to be submitted to the Council under a new and much reduced scheme. The Secretary of the Royal Institute of British Architects had thereupon written to the District Council that, if the facts were as plaintiff stated, they should forbid their members to compete. The Clerk to the Council replied to the effect that the lack of a sealed contract was Mr. Hunt's own fault. This, remarked counsel, was at the instance of the defendant, who had procured an injunction to prevent the sealing. There was another meeting of the Council in August, at which Mr. Schultess Young had made a violent attack on Mr. Hunt in his absence. The Chairman had also read an account of his interview with Mr. Hunt, which counsel alleged to be a malicious perversion of the facts.

On Wednesday Mr. Lush dealt in great detail with newspaper reports of the meeting of the Council for the purpose of showing that the defendant had made defamatory statements regarding the plaintiff. He concluded by asking the jury to say that, even if his Lordship held that the occasions when the defendant uttered and published the words complained of were privileged the defendant had, in the circumstances, been guilty of malice. He asked for such damages as would completely vindicate the plaintiff's character.

The plaintiff, Mr. William George Hunt, was called, and generally bore out the opening statement of counsel. He said he was a Fellow of the Institute, and had had twenty years' experience as an architect, having during that time been concerned in designing and in the erection of many public buildings, including a great deal of municipal work. His contention was that Mr. E. C. P. Monson, jun., had failed to carry out the agreement and share the work. He afterwards paid Mr. Monson 200*l.* for the work he had done. The idea was that young Monson should only be associated with him in connexion with the supervision of the erection. Witness did not agree to credit him with his successful design.

His Lordship: His name was to appear on the detailed drawings?

Witness said that was so.

His Lordship: He was to receive 200*l.* for doing nothing at all, and having his name on some of the drawings?

The witness said that that was for supervising the detailed drawings, and not in respect of the design.

Further examined, he said that when the surcharge of the councillors came about, he asked that his new contract should be under seal. It was not sealed because it was stopped by the injunction. After he received a notification that all his trouble had proved abortive, he called at the defendant's house when he was appointed Chairman of the new Council. That was on May 8. Defendant was not at home, and wrote asking witness to call again. Witness did so on May 9, and saw the defendant alone. It was a long interview. At the interview he told the defendant that the Clerk of the Council had advised him that a seal on the contract was not necessary. Witness also stated that the Clerk had advised him to employ a solicitor. Defendant afterwards suggested that Mr. Crane should meet witness at his house. On May 13 he again went to the defendant's house and met Mr. Crane. Defendant said that some of the councillors thought witness ought to receive some acknowledgment for the work he had done with regard to the 35,000*l.* scheme, and asked witness if he would accept 50*l.* or 100*l.* Witness replied that he was willing to act reasonably, but could not say then what he would be prepared to do. Defendant then said that witness could not claim the fees because the contract was not under seal. Defendant then said: "Is Mr. Baldwin's son in your office as articled pupil?" Witness replied that he was. Defendant then said: "Did you receive a premium with him?" and witness replied that it was not his practice to do so. Defendant then said: "I thought as much." Witness then explained why he never took a premium, and defendant then said: "Say no more, Mr. Hunt. You have fully confirmed my views about that individual. All I need say is that you have not much to thank your friends for."

Cross-examined by Mr. Hugo Young.

Mr. Monson, sen., was, he thought, a member of the Council when he decided to compete for the designing of the town hall, etc. When he was invited to compete originally he was given no indication of the cost of the buildings it was proposed to erect.

His Lordship: Did they accept your drawings before they knew what it would cost to build according to them.

The witness: That is so.

Mr. Hugo Young: You will see, my Lord, it was not their own money they were dealing with, but the ratepayers'.

Further cross-examined, the witness said he was paid the 2,400*l.*, being 3 per cent. on the 80,000*l.*, the lowest tender under the original scheme. He did not know of any reason why the defendant should have any feeling against him prior to April 15. Witness had heard that a report had been circulated in Acton that he was related to Councillor Hunt. He was not related to that gentleman. He heard that that report was circulated by the defendant.

Mr. Young said that that was not the fact.

Further cross-examined: He did not say that Mr. Monson had not done a certain amount of work in attending interviews, etc.; but what he said was that the work he did was of no assistance to witness. His complaint was that Mr. Monson had never taken up the work seriously. His whole point was that what Mr. Monson had done did not justify him in claiming half of the credit of the successful design of the witness. The fact that Mr. Monson was his father's son might perhaps have assisted him in getting the nomination. He said that the notes which the defendant read to the meeting of August 20 as to what had transpired at the interview between witness and defendant at the latter's house, were a deliberate invention. When he saw a report in the paper about the matter he immediately instructed his solicitor on the matter. He thought the defendant had showed a great deal of animus.

Re-examined: He had no idea that notes of what took place at the meeting between himself, Mr. Crane, and the defendant were to be read at the meeting of the Council. Mr. Crane afterwards told witness that he did not feel at all happy in the part he had unintentionally taken against him. He said that he thought the witness had not been properly treated. Mr. Crane further said that the defendant must have been very disappointed at the interview, because he knew that Mr. Young had expected to hear something very different to that which he did hear.

His Lordship (to Mr. Lush): Has this town hall been built yet?

Mr. Lush: No, my Lord.

His Lordship: What has been done?

Mr. Lush: Nothing, except that writs have been served in different actions and for the injunction which was obtained.

Mr. F. W. Baldwin gave evidence to the effect that the statement made by the plaintiff as to his reason for agreeing to take Mr. Baldwin, jun., as articled pupil without a premium was correct. He said that the plaintiff told him that he never received premiums with his pupils as he had no time to teach them. The arrangement was not made to influence the action of the witness on the Council, and his son was still in the plaintiff's office.

[The case was proceeding as we went to press.]

## HORTON *v.* HINSLEY.

THIS action was brought by Mr. Hoult Horton, architect, of 199, Piccadilly, W.,

against Mr. C. J. Hinsley, of Birnam, Weybridge, for balance of architect's fees and for damages for wrongful dismissal. The action arose in connexion with the building of Welbeck House, now in course of erection by the defendant, and at the corner of Wigmore and Welbeck streets. It was tried in the King's Bench Division before Mr. Muir Mackenzie, one of the Official Referees.

Mr. E. Morten and Mr. Porter (instructed by Messrs. Amery-Parkes, Macklin, & Co.) appeared for the plaintiff, and Mr. A. B. Shaw and Mr. Jelf (instructed by Messrs. Witham, Roskell, & Co.) appeared for the defendant.

The following is a transcript of the judgment so far as it is of general importance:—

"In this case, on June 11, 1907, the defendant, who had employed the plaintiff as his architect to design and supervise the construction by the defendant as builder of a large building called Welbeck House, refused to continue the contract of employment, and the plaintiff claims from the defendant remuneration and compensation. The defendant alleges that the plaintiff has been sufficiently remunerated and compensated for all useful services rendered by him to the defendant by payments amounting to 1,000*l.* made before June 11, or, in the alternative, by that sum and a further sum of 760*l.* which has been paid into Court. Inasmuch as the amount of remuneration or compensation to which the plaintiff is entitled will in my view of the terms of his engagement depend on whether the defendant's refusal to continue the employment of him and to pay him more than the above-mentioned sum was justified on the grounds alleged by the defendant, I propose first to deal with that issue between the parties. The plaintiff, professing the public calling of an architect, and as such accepting the defendant's order to design and carry out and superintend the erection of this large building, impliedly undertook, first, that he was possessed of such an ordinary amount of skill in his calling as rendered him competent to carry out the work which he was intrusted to perform; and, secondly, that in rendering his services to the defendant he would act with reasonable care and diligence. The possession of extraordinary skill the plaintiff does not warrant. If the employer insists upon superseding the architect's orders himself, it is the architect's duty to point out the consequences, and if the employer disregards his advice he will not afterwards have grounds for complaint if the consequences prove unfortunate; but an architect is not relieved from liability in negligence in design or practical supervision by the fact that the employer himself did in fact examine the things which the architect was required to perform or in which he was required to exercise his skill. If an architect does not exercise his calling with ordinary skill, care, and diligence, he breaks his contract, and is liable to dismissal, and in that event he cannot recover remuneration or compensation for services which were useless, or damages for the dismissal, and he may be liable for damages. The architect commits a breach of his contract if he supplies plans, sections, elevations, or details of plans which are for the purpose of construction defective, and for specifying useless or unnecessary labour and work, and the approval of the employer of plans and things which were in the above respects defective would not protect the architect from liability for his default; say, his estimates in detail are negligently made, which do or would become the subject of an extra outlay by the employer or of a new contract, this may amount to a default by the architect, or he may be responsible for the pecuniary loss caused by the work becoming more expensive. Further, the architect who undertakes the design and supervision of a building to be erected in a particular place undertakes that he knows and will comply with the requirements of the statutes and by-laws applicable to the district in which the place is situate, and he impliedly contracts with his employer that his plans and drawings shall be in accordance with the by-laws relating to that district. The defendant alleges defaults by the plaintiff in performing the above-mentioned obligations of an architect. With these alleged defaults I will deal separately. Before doing so, however, I have an observation to make as to the circumstances of the plaintiff's employment, because it has a material bearing upon the decision at which I have arrived. It is this: the plaintiff's employment was not the ordinary employment of an architect, first to design a building and then to act as the owner's agent to obtain tenders from a contractor, and afterwards direct, control, and superintend the contractor's work. The defendant in this case was a builder of experience in the erection of large buildings in this district, and the plaintiff was employed to prepare plans and designs for submission to the defendant, on which the defendant was to obtain contracts for different parts of the work, such as steelwork and joiners, and the plaintiff had, in short, rather to take directions from the builder than to give them to him. The defendant first alleged that the plaintiff's designs were generally faulty and unskilful, and were such that a builder could not work from, and that in some branches of the building work they were too costly. I find that this allegation has not been sustained. I place considerable reliance upon the evidence, on the general merits of the plaintiff's work, of Mr. Gibson, and also on the fact which I find established, namely, that the plans and designs were approved by the estate architect subject to suggestions of details which, with one exception, in the events which happened became immaterial, the plaintiff had either carried out or was carrying out when dismissed; and that the plans passed the examination of the District Surveyor, Mr. Ashbridge. Next, in regard to certain windows, the allegation is that the drawings subsequent to the ⅛-in. scale drawings differed from them, and contained work which was more costly, and that when the defendant desired the plaintiff to alter the detail back so as to make it conform to the approved design he refused to do so. I find the variation between the two designs was one that a skilful architect might not unreasonably propose, and that the plaintiff did not refuse to obey any direction of the defendant to alter it. He did no more than express his views that his alteration was an improvement, and express his objection as an architect to being required to revert back to a design which he did not like so well. I have no doubt if the defendant had not acted as he did that the plaintiff would have altered the design to conform to his wishes, though reluctantly, just as he conformed to the requirements of that autocratic magnate the estate architect, though he neither liked his suggestions nor approved of them."

After going into further details as to things complained of by the defendant, the Official Referee continued:—

"I therefore find that the defence put in and the various particulars have not been established. This brings me to the question, What is the sum of money to which the plaintiff is entitled in addition to the 1,000*l.* which he has received? The general rule to be applied, on which I am going to act, is this: If after part performance by the architect of his work the employer refuses to continue the contract of employment, the architect can recover all sums due for services rendered before the refusal and for what he has lost by not being permitted to complete the contract of employment, or the architect may treat the contract as rescinded, and recover the value of the services which he has rendered. The plaintiff alleges that by reason of the defendant's refusal to go on with the contract of employment he is entitled, in addition to some charge for extra work, to remuneration on the scale prescribed by the Royal Institute of British Architects as applied to the special circumstances of this case, and in effect contends that a jury or referee is bound in a case of this kind to award remuneration on this basis, notwithstanding that on the evidence and in the opinion of the jury or referee the value of the services rendered may be less in amount. . . . In one case the late Mr. Justice Quain refused to adopt the scale, as did the Court of Exchequer in another case, and as also did Lord Chief Justice Coleridge in Burr *v.* Ridout, reported in the *Times* of February 22, 1893, and Farthing *v.* Tomkins, in 9 *Times* Law Reports, page 566; and the Supreme Court of Lower Canada refused to adopt a similar scale in the case of Footner *v.* Joseph, in the 5th Lower Canada Jurist, page 226. As was stated in this case and by Lord Coleridge in his very forceful observations in Burr *v.* Ridout, you may adopt the scale if it would be a fair remuneration or compensation, but not as a binding scale; to do otherwise would be to allow architects to tax their own charges. In Gwyther *v.* Gaze the scale would have given the architect in the circumstances of that case 2½ per cent.; the judge awarded a sum which worked out at 1½ per cent. In Footner *v.* Joseph the adoption of the Canadian architect's scale would, as applied in the circumstances of that case, have worked out at 4 per cent., and the Court awarded 2½ per cent. The plaintiff here claims by applying the scale a sum equal to 4 per cent. on 122,500*l.*, together with some extra charges. I do not admit that basis of remuneration. The scale, in the manner which the plaintiff seeks to apply it, awards him a remuneration in excess of what is reasonable or just in the circumstances. Further, whatever rate is to be applied, it cannot be based on a total cost of 122,500*l.*, being the estimated cost of the building as designed by the plaintiff; but the works were not carried out under a contract with a builder for a specific sum, and the defendant had the right during the progress of the work, which he probably would have exercised if the plaintiff's employment had gone on, to make alterations for the purpose of reducing the cost. I find as follows:—If there had been no dismissal the plaintiff would in all probability have earned 3,150*l.*, to which I add 71*l.* 5s. 5d. for the extra charges, inclusive of the preliminary sketches and the party-wall work. From this I think a certain sum should be deducted in respect of the expenses which the plaintiff was saved by not having to incur them in performing the residue of the work. I do not deduct anything for other employment which the plaintiff might have obtained. In a case in which a professional person's employment comes to an end by reason of such an incident as the insolvency of an employer, or the winding-up of a company, if employed by a company, it is no doubt fair to make an allowance of that kind, because there is nothing in the determination of employment which injures the professional position of the professional man; but a gentleman who is dismissed in the middle of carrying out a very large work can scarcely expect readily to find other employment; there is for the time a certain slur upon his reputation. Acting on experience of other cases, I deduct in respect of the matters for which I think a deduction should be made 10 per cent. of 2,150*l.*—that is to say, 215*l.*—leaving a balance of 3,006*l.* 5s. 5d. From that I deduct the sum of 1,000*l.* that has already been paid, and I award accordingly the plaintiff the sum of 2,006*l.* 5s. 5d."

## THE HOLBORN ANCIENT LIGHT CASE.

THE case of J. Lyons & Co., Ltd., *v.* the British Electric Traction Company, Ltd.—the action by the plaintiffs to restrain the defendants from obstructing their ancient lights—was mentioned to Mr. Justice Parker in the Chancery Division on the 15th inst. (the facts of the case were fully reported in last week's issue of the *Builder*).

Mr. Borthwick (for the plaintiffs) said that the case had stood over from the 7th inst. for the parties to endeavour to arrange terms. He thought that substantially the parties had agreed on the terms of settlement, but not quite the whole of the details. He asked, therefore, that the case might be ordered to stand over generally with liberty to either party to apply.

His Lordship suggested that the case should be taken out of the list altogether.

Mr. Borthwick thought the case had better stand over for a fortnight. He said it might be better to keep it in the list until the compromise was effected.

Mr. Frederick Thompson (for the defendants): I think it would be better to keep the case in the list.

His Lordship: Very well.

Order accordingly.

## ACTION AGAINST THE WATFORD URBAN DISTRICT COUNCIL.

THE Railway and Canal Commissioners, consisting of Mr. Justice A. T. Lawrence, the Hon. E. Gathorne Hardy, and Sir James Woodhouse, last week delivered a considered judgment in the case of the Postmaster-General *v.* the Watford Urban District Council on the appeal of the Postmaster-General from a judgment of the County Court judge upon a question as to the right of the respondents to require the appellant to lay telephonic cables under ground to avoid inconvenience to traffic instead of carrying them overhead.

It appeared that the appellant, in March, 1907, asked the respondents' consent to the erection of telephone posts in certain streets or roads in Watford, and the respondents intimated that their consent would be subject to the wires being put underground. With regard to the St. John's-road, the County Court judge decided in favour of the appellant, and since the hearing in the County Court sanction had been obtained from the Local Government Board to a loan for the purpose of widening Aldenham-road, and therefore the respondents no longer contended that that portion of the wiring should be put underground. The only remaining question was as to Queen's-road, and there the Postmaster-General proposed to put up painted poles costing 17*l.*, whereas a deflection taking the line underground would entail a cost of 112*l.*, a difference of 95*l.* The length affected was 415 yds., and the poles were to be 70 ft. apart, so that there would be some six or seven poles.

On behalf of the appellant it was contended that the local authority was not entitled to withhold its consent, and to impose upon the Postmaster-General a burden five or six times greater except upon some sufficient, clear, distinct, and unmistakable ground. It must not be some fanciful or theoretical difficulty which would apply generally, but something real and substantial. The present population of

Watford was about 37,000. Queen's-road varied in width from 35 ft. 8 in. to 41 ft., and the poles would be placed at the edge of the kerb in line with the lamp-posts. It was urged that the County Court judge did not seem to have considered the question in all its bearings, but only to have considered Watford, and not the effect his decision would have if generally applied.

On behalf of the respondent Council it was contended that the Post-office telephone system was not a national service, and that that section of the community which did not use the service were entitled to as much consideration as that which did use it. It was not suggested that the cost of construction was not an element to be considered; but the question of the possibility of creating, by the example of Watford, greater cost elsewhere, it was urged should not be considered. It was also argued that the local authority had to consider, not only what the present traffic was, but also what it was likely to be, and, having regard to the fact that Queen's-road was one of the main arteries of Watford, that the Council were right in refusing their consent.

After hearing the evidence, the Commissioners reserved judgment.

Sir James Woodhouse read the judgment of the Court. Having stated the facts, he stated that he had personally visited the Queen's-road, and had come to the conclusion that the placing of the posts in the way suggested by the Postmaster-General would cause no appreciable impediment to the traffic or cause any inconvenience to anybody. He said that it would be impossible for the Postmaster-General to provide an efficient and economical telephonic service unless he was met reasonably by individuals and local authorities in matters of that kind.

Mr. Justice A. T. Lawrence and the Hon. Gathorne Hardy concurred, and the appeal was accordingly allowed.

## CASE UNDER PRIVATE STREET WORKS ACT.

THE case of Sturton *v.* Old Fletton Urban District Council came before a Divisional Court of King's Bench, consisting of the Lord Chief Justice and Justices A. T. Lawrence and Sutton, on the 11th inst., on the appeal of the Sturton Trust and Mrs. Sturton from a decision of justices under the Private Street Works Act, 1892.

Mr. Fleetwood Pritchard appeared for the appellants, and Mr. Schiller for the respondents.

Mr Pritchard stated that the matter came before the court in the form of a special case which had been stated by the justices, and it raised the question whether a certain apportionment of the expenses of private street works at Old Fletton had been made in accordance with the provisions of the Private Street Works Act, 1892. Se appeared for some frontagers, and ought to be charged. Under that Act the Urban District Council, before making the apportionment, had power to take several matters into consideration. His case was that in the present instance the apportionment should have been made strictly according to frontage, but an allowance was made to one of the frontagers. Appellants owned certain premises abutting upon St. Margaret's-road, Victoria-place, Old Fletton, and a gentleman named Mr. J. C. Hill also owned certain premises abutting on the road. Mr. Hill had executed certain works in connection with the making up of the road. On Nov. 12, 1906, the Council resolved, in pursuance of sect. 6 of the Act, that the Surveyor should be instructed to prepare and submit to the Council plans, specification, and estimate of the probable expenses of making up the road. This was done, and on March 11, 1907, the Council passed a resolution that the same should be approved. In May, 1907, the present appellants served on the Council a notice of objection to the provisional apportionment on several grounds, the main one being that the apportionment had not been made solely upon frontage, because it showed that an allowance was made to Mr. Hill, but did not say what the allowance was for. Before the justices it was contended on behalf of the appellants that the provisional apportionment was bad in law, because it had not been made in accordance with the provisions of sect. 6 of the Act of 1892. On behalf of the respondents it was contended before the justices that the resolution of March, 1907, was a sufficient compliance with the provisions of the Act, and the justices decided the case in favour of the Council.

The Lord Chief Justice: What difference does this make to you? It seems to me about 5*s*.

Mr Pritchard said he thought about 5*l*. He submitted that although the amount was small, the frontagers were entitled to know the principles on which the apportionment was made, and it was the duty of the Council to settle those principles before the apportionment was made. The section said that the apportionment should be made strictly according to frontage unless the Council otherwise resolved, but the council had not otherwise resolved.

In the result their lordships, without calling upon counsel for the respondents, held that there was really no substance in the appeal, which was dismissed with costs.

## BUILDING CONTRACT DISPUTE IN CARDIFF.

AT Cardiff County Court on the 7th inst his Honour Judge Owen gave his reserved judgment in the action of Phil. Phillips, 24, St. Mary-street, Cardiff, who claimed the sum of 70*l*. from the Western Counties Permanent Benefit Building Society of Taunton as assignee of the monies due to Alfred Williams, builder, under a building contract between Mr. Williams and the Society. The Society counterclaimed the sum of 70*l*. in respect of a debt alleged to be due to them from Mr. Williams prior to the date of the contract and damages for alleged breach of contract.

At the last Court it was contended by the defendants that although their architect (Mr. Gillett) had issued a certificate that 70*l*. was due to Mr. Williams under the contract they were entitled to counterclaim against the assignees for 70*l*., an old debt alleged to be due to the Society in respect of contributions, which the plaintiff held had nothing to do with the contract. The alleged breach of contract was denied. The sum of 20*l*. had been paid into Court in satisfaction of the plaintiff's claim, such tender being made without admitting liability.

His Honour held that the plaintiff was entitled to judgment for the claim, less the amount paid into Court. As regarded the counterclaim, the defendants were entitled to so much of the sum of 53*l*. 13*s*. 8*d*. claimed as they could prove. The second portion of the counterclaim (16*l*. 16*s*. 4*d*. for damages) was one for a set-off, and not for a counterclaim, and he thought the set-off failed.

After consultation between counsel it was agreed to take judgment for the plaintiff for 35*l*., costs to follow on Scale A.—*Western Mail.*

# Patents of the Week.

APPLICATIONS PUBLISHED.*

1,360 of 1907.—THE HARDY PATENT PICK COMPANY, LTD., and W. BLEARS: *Disengaging Device for Adjustable Columns, Screw-jacks, Struts, and the like.*

This relates to an adjustable column, screw-jack, strut, or the like of the type which depend for their extension upon a screw-threaded rod or shaft working in a nut, characterised in that the screw-threaded rod or shaft is rotated by and slides through a worm wheel, the operating worm of which is movable to and from the worm wheel for ready disengagement.

2,073 of 1907.—A. A. R. LANG: *Erection of Reinforced Concrete or like Buildings.*

This relates to buildings constructed of concrete or the like, in which the walls are built of concrete blocks and the combined ceilings and floors constructed of blocks or shells of concrete, or the like, the whole being bound together by concrete filling or grouting and reinforcing metal rods so that the whole building forms one connected mass.

2,282 of 1907.—J. R. PEIRCE: *Cut-off Machines for Marble Slabs or the like.*

This relates to a cut-off apparatus for marble slabs, comprising a thin wheel moulded integrally of carborundum so agglomerated that the particles thereof do not become disintegrated and act as a loose abrasive, but act like the teeth of a steel saw, said wheel being supported at one side of the slab, and means for rotating said wheel at a high rate of speed, and traversing it to cause it to cut through the slab.

3,915 of 1907.—A. REYNOLDS: *Electrical Heating Apparatus.*

This relates to an electrical heating apparatus for rooms or the like, comprising two concentric cylinders, one or both of which are provided with radiating gills, a resistance either partly or wholly of powdered carbon in the annular space between the cylinders, and means for conducting a current of electricity to and from the said resistance.

4,967 of 1907.—F. SELF: *Windows.*

This relates to windows, and consists in constructing a window-box which contains steel racks and a pinion to be used as a sash slide in place of sash cord and weights, so that by raising the bottom sash its weight brings down the top sash. A steel plate is embedded inside the middle of the sash with a pin, half of which is square. The remainder forms a bolt swivel into the bottom of each rack, and over all is a cover. At the bottom is a slot 5 in. to 6 in. long, in which the swivel bolt slides as the rack rises, till at the end is a circle in which the swivel bolt revolves so as to bring the sash outside into the room to save getting outside to clean the windows. A bolt lock is passed through the sash-box slot to prevent the window being opened more than 4 in. to 5 in. top and bottom.

6,378 of 1907.—T. C. FAWCETT, LTD., and J. D. FAWCETT: *Application of Clutch-driving Mechanism to Power Brick-cutting Tables and Brick-pressing Machines.*

This consists in the application to power brick-cutting tables and brick-pressing machines of a clutch-driving mechanism, comprising a movable key or longitudinal rod or bar of half-circular section with the remaining surface curved or rounded to coincide with the periphery of the shaft or sleeve, in a recess or groove in which it registers, the said key or clutch bar having cylindrical ends which are seated and adapted to turn in bearings or collars fast on the shaft or sleeve, and being provided with an arm or finger extending outwardly through an opening or jaw in the respective collar in which it is movable in one direction under the action of a spring, and in the other direction by a lever normally engaging said arm, and grooves or recesses in the boss of the rotating wheel with one or other of which the key is adapted to engage to lock the wheel and shaft rotatively together when the arm or finger is released automatically by connexions from a part of the machine or by a hand lever.

8,569 of 1907.—E. SAVOYE: *Windows, Casements, doors, and the like.*

This relates to a window having between the wall of the building and the frame carrying the casements or sashes a filling provided with comparatively narrow regulatable apertures in order to permit of ventilation without opening said casements or sashes.

8,661 of 1907.—J. B. HICKMANN: *Valves of Hydrants for Stand-pipes, Stand-posts, and the like.*

This relates to a device or appliance applicable as a valve for hydrants for stand-pipes, comprising a container for a ball-valve having a perforated or grid entrance way for the water, a seating for the ball when under pressure, and an outlet way for the water as soon as pressure is removed from the ball.

17,441 of 1907.—J. A. MCLANE and J. H. MCDERMOTT: *Manufacture of Wire and other Plate-glass.*

This relates to the manufacture of wire-glass, and consists in rolling a single sheet of glass, remelting the surface thereof and applying wire-netting to the same, and rolling another sheet of glass upon the remelted surface of the first sheet, so forming the complete plate of wire-glass.

21,265 of 1907.—G. BUTLER: *Wedge Cramp.*

This relates to a cramp, composed of one piece of iron or steel in the shape of the letter S, with spurs at the ends at right angles to the flat part of the S; these spurs have spikes or teeth on the inner edges so that when the S part is laid on the joist the spurs are at the side of the joist. When twisted these spikes or teeth on the spurs engage the sides of the joist, when an ordinary wedge can be driven in, thus tightening or cramping the article required, causing the spikes or teeth on the spurs to embed themselves deeper and prevent them from moving. The S shape or flat is bolted or welded through with distance-pieces between to keep it always in shape.

1,515 of 1907.—J. BARTH: *Self-closing Valves for Drain-pipes and the like.*

This relates to a self-closing valve for drain-pipes and the like, comprising the combination of a pipe section provided with a valve seating, and having formed on it or connected to it an enlargement constituting a chamber. Mounted on trunnions or a spindle within the chamber is a two-armed lever, and on one of these arms the valve is carried. Carried on the end of the arm remote from the valve is a counterweight which is heavier than the valve, so that the valve is normally inoperative, but will automatically seat itself when back flow or flooding occurs.

PATENTS.—*Continued on page 227.*

* All these applications are in the stage in which opposition to the grant of patents upon them can be made.

# List of Competitions, Contracts, etc.

**For some Contracts still open, but not included in this List, see previous issues Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xviii; Auction Sales, xxviii.**

**Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.**

**The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.**

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

## Competition.

FEBRUARY 26.—**Gorseinon.**—REBUILDING EBENEZER.—The Committee responsible for rebuilding Ebenezer, Gorseinon, are prepared to offer 5*l.* 5s. for the best plan of a chapel of 650 sittings, not to exceed 2,000*l.* Tenderers are requested to send also their charges for making out specifications and bills of quantities for their respective plans. The present chapel and site may be seen on application to Rev. D. H. Thomas, Gorseinon.

## Contracts.

### BUILDING.

FEBRUARY 21-MARCH 3.—**Birmingham.**—ALTERATIONS, ETC.—Birmingham Electric Supply Committee invite tenders for alterations and additions to existing offices and generating station, Dale-end, Birmingham. Applications for forms of tender, etc., may be made at the office of the Quantity Surveyor, Mr. Anthony Rowse, King's-court, Colmore-row, Birmingham. Before obtaining the bills of quantities it will be necessary to deposit a sum of 2*l.* 2s. The drawings may be seen at the office of the architects, Messrs. Ewen Harper & Brother, 191, Corporation-street, Birmingham.

FEBRUARY 22-MARCH 13.—**Gaywood.**—SCHOOL.—Norfolk Education Committee invite tenders for the erection of new school at Gaywood. Names to the architect, Mr. E. J. Tench, A.R.I.B.A., Royal Insurance-buildings, King-street, Norwich, from whom bill of quantities can be obtained. A deposit of 2*l.* 2s. will be required.

FEBRUARY 22.—**Hertford.**—ALTERATIONS.—The Trustees of "Nobles Charity" invite tenders for sundry works of alteration to Bayley Lodge, Queen's-road, Hertford. Plans, etc., can be obtained on application to Messrs. Sworder & Longmore, Solicitors and Trustees, Hertford.

FEBRUARY 24.—**Burghead.**—COTTAGE.—Cottage to be erected at Dunbar-street, Burghead. The plans, etc., may be seen with Mr. John Wittet, architect, Elgin.

FEBRUARY 24.—**Hunslet and Holbeck.**—ALTERATIONS TO BATHS.—Alterations in the depth of the first-class swimming baths at Meanwood-road, Hunslet, and Holbeck. The drawings, etc., may be seen at the City Engineer's Office, Municipal Buildings, and bills of quantities obtained on deposit of 1*l.* 1s.

FEBRUARY 24.—**Maesycoed.**—SCHOOL.—Pontypridd Education Committee invite tenders for the erection of a school to accommodate 750 children in three departments. Names, together with a deposit of 5*l.* 5s., to Mr. D. Milton Jones, Secretary, Municipal Buildings, Pontypridd.

FEBRUARY 24.—**Penygraig.**—ALTERATIONS, ETC.—The Penygraig Industrial Co-operative Society invite tenders for certain alterations and additions to premises. Plans, etc., to be seen on their premises.

FEBRUARY 24.—**St. Just-in-Roseland.**—ADDITIONS, ETC.—Additions and alterations to the dwelling-house and premises, improvements to water supply, laying out of carriage drives, tennis courts, erection of conservatory, verandah, etc., at Tregorland, St. Just-in-Roseland. Plans, etc., may be seen at Messrs. Criddle & Smith's, Truro, and further particulars may be obtained from Messrs. R. H. & E. W. Tonkin, surveyors and sanitary engineers, Tregoney.

FEBRUARY 24.—**Stoke-under-Ham.**—CONGREGATIONAL CHURCH EXTENSION SCHEME.—Extension of gallery to provide additional sitting accommodation for sixty persons, and for certain internal and external painting, etc. Plans and specifications may be seen at the address of Mr. J. J. Bell, High-street, Stoke-under-Ham.

FEBRUARY 25.—**Cluny.**—WORK AT CASTLE, ETC.—(1) Recreation and supper rooms at Cluny Castle; (2) sixty new windows in front and gables of castle; (3) new post-office and dwelling-house at Kinlochlaggan; (4) gardener's house at Aberarder Lodge. Plans, etc., may be seen with Mr. Alexander Mackenzie, C.E., architect.

FEBRUARY 26.—**Birkenhead.**—LIBRARY.—Tenders are invited for the erection of the North Branch Library, Price-street, Birkenhead, for the Birkenhead Library Committee. Plans, etc., may be seen between the hours of 10 a.m. and 6 p.m. at the office of the architect, Mr. Arthur W. Street, 13, Hamilton-square, Birkenhead, where bills of quantities may be obtained upon payment of a deposit of 10s.

FEBRUARY 26.—**Crewe.**—CHURCH DECORATION.—For decoration, etc., of Trinity Wesleyan Church, Crewe. Designs and specifications may be seen on application to Rev. A. Hewitson, 196, Nantwich-road, Crewe.

FEBRUARY 26.—**Manchester.**—WALL.—The Corporation Improvement and Buildings Committee invite tenders for the erection of a wall and fencing at Platt Fields, Wilmslow-road. Drawings may be seen, and specification, etc., obtained, on application at the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 2*l.* 2s. All cheques or postal orders are to be made payable to the order of "The Corporation of Manchester."

FEBRUARY 27.—**Edinburgh.**—ALTERATIONS TO SCHOOL.—George Heriot's Trust Governors invite tenders for the whole works (one contract) in connexion with the alterations to be made upon the headmaster's house and other rooms to adapt them for class-room accommodation. Plans of the alterations may be seen in the hands of Mr. John Anderson, Superintendent of Works, 20, York-place, Edinburgh.

FEBRUARY 27.—**Glasgow.**—LAVATORY.—The Corporation of Glasgow invite tenders for the several works required in the erection of a new lavatory, etc., in the Alexandra Park. Copies of specifications and forms of tender may be obtained on application to the City Engineer, 64, Cochrane-street.

FEBRUARY 27.—**Kendal.**—CHURCH WORKS.—The various artificer's works required in the renovations and improvements to the St. George's Catholic Church and Rectory, Kendal. Plans, etc., may be seen, and other information obtained, on applying at offices of Mr. John Stalker, M.S.A., architect, 57, Highgate, Kendal.

FEBRUARY 27.—**Skircoat Green.**—HOUSE.—The erection of a pair of semi-detached houses at Skircoat Green. Plans, etc., may be seen, and bills of quantities obtained, at offices of Messrs. Jackson & Fox, architects, 7, Rawson-street, Halifax.

FEBRUARY 28.—**Dunphail, Inverness.**—HOUSES.—The Highland Railway Company Directors invite tenders for the mason, carpenter, slater, plaster, plumber, painter, and glazier works for a block of two houses for workmen at Dunphail Station. Plans, etc., may be seen with Mr. William Roberts, the Company's Engineer-in-Chief, at Inverness, or with the Stationmaster at Dunphail.

FEBRUARY 28.—**Langley.**—LIBRARY.—The U.D.C. of Oldbury Public Libraries Committee invite tenders for the proposed new library at Langley. Names and addresses to Mr. Frank C. Taylor, Librarian, Central Library, Oldbury.

FEBRUARY 28-MARCH 2.—**Wallsend.**—COTTAGES.—The Wallsend Industrial Co-operative Society, Ltd., invite tenders for the erection of ten pairs of semi-detached cottages on Model Cottage Exhibition Estate, Walker Gate, for the society and members. Plans, etc., prepared by Mr. Ed. Cratney, architect, 35, High-street, Wallsend, and Messrs. T. E. Davidson & Sons, architects, Pearl-buildings, Newcastle-on-Tyne, may be seen, and form of tender will be supplied, at the Board-room, Frank-street, Wallsend.

FEBRUARY 29.—**Colston, Bishopbriggs.**—SCHOOL.—The School Board of Maryhill invite tenders for proposed new school at Colston, Bishopbriggs. Copies of the various specifications (price 10s. each) may be had from Mr. W. B. Gemmel, Clerk, office of the School Board, 208, West George-street, Glasgow.

FEBRUARY 29.—**Manchester.**—SCHOOL.—The erection in Princess-road, Alexandra Park, Manchester, of the Bishop Bilsborrow Memorial School and Parochial Hall. Bills of quantities may be obtained on written application to Mr. R. H. Abbott, M.A.C.E., Brantingham-road, Whalley Range, Manchester. Applicants must forward a deposit of 1*l.* 1s.

MARCH 2.—**Ashington and Hirst.**—WASHHOUSES.—The erection of washhouses for cottages at Ashington and Hirst. Plans, etc., to be seen at the offices of Secretary, Ashington Industrial Co-operative Society.

MARCH 2.—**Newcastle-upon-Tyne.**—ROOF COVERING AND BRICKWORK FOR SINGLE-STORY SHED AT QUAYSIDE.—Tenders are invited for the supply and erection of timber, slating, glazing, and brickwork filling for steel frame structure in connexion with the above shed. Copies of plans, etc., will be supplied by letter addressed to the City Engineer, Town Hall, Newcastle-upon-Tyne, and inclosing cheque for 1*l.* 1s. payable to the City Treasurer.

* MARCH 2.—**Romford.**—INFANTS' SCHOOL.—The Essex Education Committee (Romford L.A.S.C.) invite tenders for an infants' school at Romford. For further particulars see advertisement in this issue.

MARCH 2.—**Stone.**—SCHOOL ADDITIONS.—The Governors of Alleyne's Grammar School, Stone, Staffordshire, invite tenders for the erection of new laboratory, class and lecture rooms, etc., in accordance with plans, etc., prepared by Mr. W. E. Rogers, architect, Rugeley, at whose office plans, etc., may be inspected, and bills of quantities obtained, on payment of a deposit of 1*l.* 1s.

MARCH 3.—**Fulwell.**—SCHOOL.—Sole tenders are invited for the erection of a new Council School for about 800 scholars at Fulwell. Plans, etc., may be seen, and bills of quantities obtained, at the office of Messrs. W. & T. R. Milburn, 20, Fawcett-street, Sunderland.

MARCH 3.—**Scorton.**—CHURCH AND SCHOOL.—For new Wesleyan Church and School at Scorton. Plans, etc., can be seen at the office of Mr. Fred. G. Bennison, Scorton, Darlington.

MARCH 4.—**Llanfynydd.**—REBUILDING INN.—For rebuilding the New Cross Inn, near Llanfynydd, for Mr. T. Lewis, J.P. Plans, etc., can be seen, and further particulars obtained, at the offices of Mr. Arthur S. Wilkams, M.S.A., architect and surveyor, Llandilo.

MARCH 5.—**Weymouth.**—PAVILION.—Weymouth and Melcombe Regis T.C. invite tenders for the erection of a pavilion on a site to the northward of the present pier (two contracts). Specifications, etc., to be obtained, and plans seen, at the Municipal Offices, Weymouth, or at the office of Messrs. Mangnall & Littlewoods, architects, 42, Spring-gardens, Manchester. A deposit of 1*l.* in respect of each specification, etc., must be enclosed with the application.

MARCH 6.—**Wrabness.**—CHAPEL.—The erection of new Wesleyan Chapel, at Wrabness, Essex. Plans, etc., can be seen on application to the Rev. R. Parkin Grant, Wesleyan Manse, Manningtree, and at the offices of the architects, Messrs. Eade & Johns, Tower-chambers, Tower-street, Ipswich.

MARCH 9.—**Halifax.**—MILL, ETC.—The erection of mill, engine and boiler houses, with mill chimney and reservoir, etc., at West End, Halifax. Plans, etc., may be seen, and bills of quantities obtained, at offices of Messrs. Medley Hall & Son, architects and surveyors, 1, Harrison-road, Halifax.

MARCH 9.—**Hopkinstown.**—SCHOOL EXTENSION.—Pontypridd Education Committee invite tenders for extension of Hopkinstown Infant School. Plans, etc., may be seen at the office of the Surveyor to the Council, on payment to Mr. D. Milton Jones, Secretary to the Education Committee, Municipal-buildings, Pontypridd, of 3*l.*

* MARCH 10.—**Edmonton.**—NEW INFIRMARY.—The Guardians of the Edmonton Union invite tenders for the first portion of the new infirmary. For further particulars see advertisement in this issue.

* MARCH 12.—**Ramsgate.**—POST-OFFICE.—The Commissioners of H.M. Works, etc., invite tenders for new post-office at Ramsgate. For further particulars refer to an advertisement in this issue.

* MARCH 14.—**Guildford.**—PORTER'S LODGE, ETC.—The Guardians of the Guildford Union invite tenders for a porter's lodge, a receiving block, and a small stable building, etc., at the Union Workhouse, Guildford. For further particulars see advertisement in this issue.

NO DATE.—**Ballynahinch.**—HOUSES.—The erection of three houses in Church-street, Ballynahinch. Plans, etc., can be seen at Mr. B. Mooney's, High-street, Ballynahinch, or at Miss Fisher's, 403, Ormeau-road, Belfast.

NO DATE.—**Belfast.**—PREMISES, ETC.—The rebuilding of licensed premises and dwellings, Newtownards-road, Belfast, for Mr. John King. Plans, etc., of the work may be obtained at the office of Mr. W. J. Moore, architect, 35, Royal-avenue, Belfast.

NO DATE.—**Bowburn.**—REBUILDING INN.—For rebuilding Hare and Greyhounds Inn, at Bowburn, Co. Durham, for Messrs. J. Nimmo & Son, Ltd. Applications for quantities to Mr. T. W. T. Richardson, architect, 57, High-street, Stockton-on-Tees.

* NO DATE.—**Croydon.**—SHOW STANDS.—Tenders are invited for agricultural show stands, etc., in timber at Croydon. For further particulars see advertisement in this issue.

NO DATE.—**Doncaster.**—HOTEL.—Pulling down of the Ram Hotel premises, High-street, Doncaster, and the erection of a new hotel (fifty-five bedrooms) and three lock-up shops. Names to Mr. W. H. Wagstaff, A.M.Inst.C.E., architect and surveyor, 57, Saltergate, Chesterfield, and 5, Cleveland-street, Doncaster. Deposit of 2*l.* 2s.

NO DATE.—**Grange-over-Sands.**—ELECTRIC LIGHT STATION.—Building an electric light generating station, sterilising house, and additions to the present building, at the Westmorland Consumption Sanatorium, Meathop, Grange-over-Sands, for the Chairman and Committee. Plans can be inspected, and bills of quantities obtained, at office of Mr. John Hutton, M.R.S.I., architect, Kendal.

NO DATE.—**Harrogate.**—BAKEHOUSE.—The erection of a proposed bakehouse, Regent-parade, Harrogate, for the Harrogate and District Co-operative Society. Names immediately to Mr. T. Edwd. Marshall, F.R.I.B.A., architect, James-street, Harrogate.

NO DATE.—**Middlewich.**—CHURCH AND SCHOOLS.—New Wesleyan Church and Schools, Middlewich. Quantities from Mr. Arthur Priest, architect, Godstall-lane, Chester.

NO DATE.—**Scotstoun.**—SCHOOL.—Renfrew Landward School Board invite tenders for works for the proposed new school at Victoria-drive, Scotstoun. Names to Mr. John R. Parker, Clerk to the Board, 1, Manse-street, Renfrew. Plans may be seen at Messrs. Kerr & Watson's, architects, Johnstone.

NO DATE.—**Seghill.**—EXTENSION TO INN.—Extensions to the Boundary Inn, Seghill. Names to Messrs. Cackett & Burns Dick, architects, Pilgrim House, Newcastle.

No DATE.—**Sheffield.**—HOUSES.—For the erection of two dwelling-houses, situate in Manor-lane. Apply to Mr. Thos. Millward, No. 11, Tylney-road, Sheffield.

## ENGINEERING, IRON, AND STEEL.

FEBRUARY 21-MARCH 3.—**Birmingham.**—EXTENSIONS AT ELECTRICITY WORKS.—Birmingham Electric Supply Committee invite tenders for extensions to main flues, economisers, boiler and engine foundations, etc., at electric generating station, Summer-lane, Birmingham. Forms of tender, etc., at the office of the architects, Messrs. Ewen Harper & Brother, Ruskin-chambers, 191, Corporation-street, Birmingham. Before obtaining the bills of quantities it will be necessary to deposit a sum of 2*l.* 2s.

FEBRUARY 24.—**Coventry.**—TANK.—The Gas Committee of the Coventry Corporation invite tenders for the supply and erection at their Foleshill works of a cast-iron overhead covered tank, 37 ft. by 17 ft. by 5 ft. deep, with girders to support same. Form of tender, etc., will be supplied on application to Mr. Fletcher W. Stevenson, Engineer and General Manager, Gasworks, Coventry, and on payment of 10s. 6d., which will not be returned.

FEBRUARY 24. — **Dublin.** — RAILS, ETC. — Great Northern Railway Company (Ireland) Directors invite tenders for the supply of 1,500 to 2,000 tons of 90 lb. steel bullhead rails, with the necessary fishplates, and 1,000 to 1,500 tons of cast-iron chairs. Specifications, etc., can be obtained from the Secretary, Mr. T. Morrison, Secretary's office, Amiens-street Terminus, Dublin, on payment of 1s. each.

FEBRUARY 24.—**Edinburgh, etc.**—STEELWORK FOR BRIDGES.—Caledonian Railway Company invite tenders for renewal of underbridges at 65 miles 20 chains and 74 miles 38 chains on main line, and at 74 miles 26 chains on Edinburgh branch. Drawings may be seen at the office of the Company's District Engineer, Princess-street Station, Edinburgh, where copies of the specification, etc., may be obtained on payment of 2*l.* 2s.

FEBRUARY 25. — **Sheerness.** — LANDING LADDERS.—Sheerness U.D.C. invite tenders for the supply of sixteen wrought-iron, galvanised, straight landing ladders. Further particulars can be obtained on application to the Surveyor to the Council, Mr. Thos. F. Berry.

FEBRUARY 27. — **Bristol.** — DOCKS WORKS.—Cables for distributing electric current for power and light and electric lighting, Avonmouth Dock. Mr. W. W. Squire, Engineer, Engineer's office, Cumberland-road, Bristol.

MARCH 2.—**Dundee.**—SWITCHGEAR, ETC.—The Corporation of Dundee Electricity Supply Department invite tenders for E.H.T. 3-phase and direct-current switchboards, substation converting machinery, and apparatus, etc. Copy of general conditions, etc., may be had on application to Mr. H. Richardson, M.Inst.E.E., Engineer-in-Chief, Corporation Electricity Department, Dudhope Crescent-road, Dundee, on deposit of a sum of 3*l.* 3s., and a deposit of 1*l.* 1s. for each extra copy if required.

* MARCH 4. — **Southwark.** — WELL-SINKING.—The Southwark B.C. invite tenders for (1) sinking well and (2) providing and fixing pumping plant at Public Baths, Manor-place, S.E. For further particulars see advertisement in this issue.

MAY 1.—**Quebec.** CRANE.—Quebec Harbour Commissioners of Quebec, Canada, invite tenders for the supply of a 30-ton capacity floating crane, particulars of which may be had from the Commissioners' Chief Engineer, Mr. St. Geo. Boswell.

## MISCELLANEOUS.

FEBRUARY 24.—**Leeds.**—SEATING.—Tenders are invited for supplying and fixing seating at the Kirkstall-road, Union-street, Holbeck, Hunslet, and Meanwood road baths. The drawings, etc., may be seen at the City Engineer's Office, Municipal Buildings, and bills of quantities obtained on deposit of 1*l.* 1s.

FEBRUARY 24. — **Rochford.** — SCAVENGING. — The R.D.C. invite tenders for the removal of house refuse. Forms to be obtained of Mr. Frederic Gregson, Clerk, Southend-on-Sea.

FEBRUARY 25.—**Marlow.**—TEAM LABOUR, ETC.—Marlow U.D.C. invite tenders for team labour for (1) (*a*) street watering, (*b*) refuse collection, and (*c*) other work; (2) (*a*) the road refuse, (*b*) the house refuse collected, etc. Particulars can be obtained at the office of Mr. T. N. W. Watts, the Surveyor to the Council, High-street, Marlow.

FEBRUARY 25.—**Stroud.**—HAULING.—Stroud R.D.C. invite tenders for hauling stone from the various quarries, wharves, and railway stations. Specification, etc., can be obtained by applying at office of Mr. J. E. Haynes, Surveyor, Union Offices, Stroud.

FEBRUARY 26.—**Aylesbury.**—CARTING, ETC.—Bucks C.C. Highways Committee invite tenders for general carting and for haulage of granite. Forms of tender from Mr. R. J. Thomas, County Surveyor, County Hall, Aylesbury.

FEBRUARY 26. — **Felixstowe.** — SHEDDING.—Suffolk Agricultural Association invite tenders for erection of shedding, canvas for shedding for Felixstowe Show, June 3 and 4. Mr. Robert Bond, Secretary, 6, Butter Market, Ipswich.

FEBRUARY 26. — **Tynemouth.** — CARTAGE. — The R.D.C. invite tenders for team labour. Specification, etc., may be obtained from Mr. John Waters, Long Benton, Newcastle-on-Tyne.

FEBRUARY 26. — **Willington, Tynemouth.** — SCAVENGING.—The R.D.C. invite tenders for the removal and disposal of the house refuse, and for the cleansing and taking away the contents of earth closets, privies, ashpits, and cesspools of Willington. Specification, etc., may be obtained on application to Mr. Wm. Bean, Inspector of Nuisances, 3, Southview, Forest Hall, Newcastle-on-Tyne.

FEBRUARY 27. — **Belfast.**—GALVANISED DUST-BINS.—Belfast Public Health Committee invite tenders for the supply of galvanised iron dust-bins. Forms of tender may be obtained from the Superintendent of the House-Cleansing Department, City Hall.

FEBRUARY 29. — **Billesdon.** — TEAM LABOUR. — The R.D.C. of Billesdon invite tenders for the cartage of granite and granite chippings. Forms giving particulars to be obtained at office of Mr. W. E. Richardson, Clerk, 18, New-street, Leicester.

FEBRUARY 29. — **Darlaston.** — ROLLER. — A 10-ton steam road-roller, with road scarifier attached. Specification and estimate to Mr. J. Cash Joynson, Engineer and Surveyor, Town Hall, Darlaston.

MARCH 2.—**Bishops Stortford.**—FIRE ENGINE.—The U.D.C. invite tenders for the supply and delivery of a steam fire-engine, capable of throwing from 260-300 gallons per minute. Firms tendering are requested to quote prices for (1) a motor steam fire-engine, and (2) a horse-drawn engine. Mr. Thos. Swatheridge, Clerk of the Council, Council Offices, Offices, 7, North-street, Bishop's Stortford.

MARCH 2.—**Carlisle.**—CARTING.—Carlisle Gas Committee invite tenders for the carting required at their works. Form of tender, etc., on application to Mr. W. J. Smith, B.Sc., Engineer and Manager, Gas Works, Carlisle.

MARCH 2.—**Erith.**—FENCING.—The U.D.C. of Erith invite tenders for the supply and erection of 1,200 ft. lin. of 6-ft. unclimbable iron fencing, delivered at Abbey Wood Station. Specification, etc., may be seen, and form of tender, etc., obtained, at the office of the Surveyor of the Council, Bexley-road, Erith.

MARCH 2. — **Whitley.**—SCAVENGING.—Whitley and Monkseaton U.D.C. invite tenders for the team labour in connexion with the emptying and disposal of refuse of the ashpits, ash-boxes and privies, and shops in the district. Specifications can be seen, and form of tender obtained, on application to Mr. J. W. Harper, Inspector of Nuisances, Council Buildings, Whitley Bay.

MARCH 4.—**Carshalton.**—SCAVENGING.—Carshalton U.D.C. invite tenders for the removal of house refuse and the emptying and cleansing of ashpits within their district. Mr. C. P. Lovelock, Clerk, District Council Offices, High-street, Carshalton.

MARCH 4.—**Llandaff.**—SCAVENGING.—Llandaff and Dinas Powis R.D.C. invite tenders for scavenging, etc. Specifications may be obtained from Mr. M. Warren, Clerk, Park House, 20, Park-place, Cardiff, or from Mr. William Lewis, 13, Heol-fair, Llandaff, and from Mr. William Morgan, The Cwm, Dinas Powis.

MARCH 4. — **Northampton.** — TEAM LABOUR.—The R.D.C. invite tenders for team labour on the several district roads in this district. Particulars from District Surveyor, at his office, Kislingbury, Northampton.

MARCH 14.—**Harwich.**—FENCING.—The Governors invite tenders for the supply, delivery, and fixing of oak or jarrah wood or iron fencing, to inclose Harwich and district secondary school site. Specification, etc., can be inspected at the office of Mr. G. C. Holland, Clerk to the Governors, 4, Trinity-street, Colchester.

NO DATE.—**Bury.**—LEVELLING, ETC., CRICKET FIELD.—For levelling and forming part of cricket field at the Bury Grammar School. Names to Mr. Herbert Nuttall, F.S.I., 20, Market-street, Bury.

NO DATE. — **Handsworth.** — MORTAR MILL. — The U.D.C. of Handsworth invite tenders for the supply of a mortar mill. All particulars may be obtained from Mr. H. Richardson, Surveyor to the Council, Council House, Handsworth, Birmingham.

## PAINTING, etc.

FEBRUARY 22.—**Harrogate.**—PAINTING.—The Harrogate Corporation invite tenders for painting the public seats in various parts of the Borough, the specification for which may now be seen at office of Mr. F. Bagshaw, Borough Engineer and Surveyor.

FEBRUARY 24. — **Halifax.** — PAINTING. — Halifax Watch Committee invite tenders for painting the exterior of the police-station and courthouse. Specifications may be seen, and forms of tender, obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.*

FEBRUARY 26.—**Beeston.**—PAINTING.—Painting and cleaning Primitive Chapel, Beeston Far Royds. Apply Mr. Worrell, 5, Royds Hall-place, Leeds.

FEBRUARY 26. — **Chesterfield.** — PAINTING, ETC. — Chesterfield Education Committee invite tenders for work to be done at the swimming bath under the Central Council School, Ashgate-road, Chesterfield. Two copies of the specification may be had on application to Mr. C. J. Kerslake, Secretary, Education Offices, Foljambe-road, Chesterfield.

FEBRUARY 26.—**Chester-le-Street.**—PAINTING, ETC. —The Guardians invite tenders for painting and varnishing of the wards, rooms, etc., in the infirmary at the Workhouse. Specification, etc., may be obtained from the Master of the Workhouse.

FEBRUARY 26. — **Stroud.** — PAINTING, ETC. — Stroud U.D.C. invite tenders for painting and decorating, etc., at the Public Baths, Gloucester-street, Stroud. Specifications may be seen, and form of tender obtained at the offices of the Surveyor to the U.D.C., Town Hall, Stroud.

FEBRUARY 28. — **Exeter.** — PAINTING, ETC. — Devon County Cricket Club invite tenders for painting and altering the pavilion. Plans, etc., may be seen at the offices of Mr. Harbottle, Victoria-buildings, Exeter.

MARCH 4.—**Leeds.**—PAINTING, ETC.—Leeds Corporation invite tenders for cleaning down, painting, etc., the various police-stations in the city of Leeds. Forms of tender, etc., may be obtained at the City Engineer's Office, Municipal Buildings, Leeds, on payment of a deposit of 1*l.* 1s.

MARCH 4.—**Poplar.**—PAINTING.—Poplar Guardians invite tenders for internal and external painting, distempering, and general repairs at the Langley House Receiving Home for Children, 54, East India Dock-road, Poplar. Forms of tender, etc., can be obtained of Messrs. Clarkson, architects, 136, High-street, Poplar, upon payment of 2*l.* 2s.

## ROADS, SANITARY, AND WATER WORKS.

FEBRUARY 24. — **East Cowes.**—ROAD.—East Cowes U.D.C. invite tenders for forming, making-up, paving, draining, and kerbing a new road leading from Bridge-square, East Cowes, to York-avenue. Plans, etc., can be seen on application to Mr. A. E. Barton, Town Surveyor, East Cowes.

FEBRUARY 24. — **Litherland.** — PAVING WORKS.—The U.D.C. of Litherland invite tenders for:—(1) Reconstruction of Jubilee-road; (2) completing passages. Plans, etc., can be seen, and quantities, etc., obtained, on application to Mr. A. H. Carter, Surveyor, Public Offices, Sefton-road, Litherland, on payment of the sum of 10s. 6d.

FEBRUARY 24. — **Rayleigh.** — SEWER. — Rochford R.D.C. invite tenders for constructing about 640 yds. of sewer at London Hill, Rayleigh. Plan, etc., may be seen on application to Mr. H. T. Sidwell, surveyor, Rochford.

FEBRUARY 25. — **Dalkeith.** — DRAINAGE. — Dalkeith Combination Poorhouse Board invite tenders for proposed alterations on drainage system of Poorhouse. Plan, etc., may be seen at the Poorhouse, Eskbank, Dalkeith.

FEBRUARY 25. — **Penrallt.** — WATER MAINS, ETC.—Lleyn R.D.C. invite tenders for:—(*a*) Extension of water mains to Penrallt; (*b*) extension of sewer at Tower-hill; (*c*) extension of sewer at Aberavon to the sea. Drawings, etc., may be seen at the office of the Clerk to the P.C., Minyffynon, Well-street, Nevin, or at the office of Mr. E. Evans, C.E., Carnarvon.

FEBRUARY 25.—**Salford.**—SEWERING, PAVING, ETC.—Salford Corporation invite tenders for sewering, paving, and flagging certain streets. The plans may be seen, and forms of tender obtained, at the Borough Engineer's office, Town Hall, Salford.

* FEBRUARY 25. — **Willesden.**—ROAD-MAKING, ETC.—The Willesden D.C. invite tenders for certain road-making and paving works in James'-avenue, Mora-road, Agave-road, Olive-road, and Holm-road, Cricklewood, and Christchurch-avenue, Brondesbury. For further particulars see advertisement in this issue.

FEBRUARY 26. — **Cardiff, etc.** — ROAD WORKS. — Glamorgan C.C. invite tenders for the widening and improving of:—(1) Cardiff and Pontypridd-road; (2) Cowbridge and Llantrisant-road; (3) Llantrisant and Llanharan-road; (4) Sketty and Fairwood Common-road. Plans, etc., may be seen, and copies of the bills of quantities obtained, for work No. 1, at the Taff's Well Police-station; for work No. 2, at the Cowbridge Police-station; for work No. 3, at the Llantrisant Police-station; and for work No. 4, at the Mumbles Police-station; and for all the works, at offices of the Clerk of the C.C., Glamorgan C.C. Offices, Westgate-street, Cardiff.

FEBRUARY 26. — **Erdington.** — PRIVATE STREET IMPROVEMENT.—Erdington U.D.C. invite tenders for partially making-up Trafalgar-road (section B). Plans, etc., may be seen, and copies of quantities, etc., obtained, upon application at office of Mr. Herbert H. Humphries, Engineer and Surveyor, Council House, Erdington.

FEBRUARY 26. — **Rochdale.** — SEWERS. — Rochdale Paving Committee invite tenders for the construction of about 860 lin. yds. of earthenware pipe sewers, 21 in. to 9 in. diameter, with manholes, etc., in Charlotte-street and Broad-lane. Plans, etc., may be seen, and copies of the quantities, etc., obtained, on payment of a deposit of 10s. 6d., at the office of Mr. S. S. Platt, Borough Surveyor, Town Hall, Rochdale.

FEBRUARY 27.—**Hackney.**—ROAD WORKS.—Hackney B.C. invite tenders for the kerbing, channelling, paving, making-up, etc., of Trehurst-street (part northward from Marsh-hill). The general conditions of contract, etc., may be inspected, and copies of the bill of quantities, etc., obtained, on application to Mr. Norman Scorgie, M.Inst.C.E., Borough Engineer and Surveyor, and on payment of the sum of 1*l.* 1s.

FEBRUARY 27.—**Oldbury.**—SEWERS.—The U.D.C. of Oldbury invite tenders for taking up about 709 yds. of 21-in. pipe sewer and laying about 742 yds. of 24-in. earthenware pipes and 56 yds. of 24-in. cast-iron pipe sewer, including canal crossing; also 103 yds. of 9-in. pipe sewer, together with about twenty-one manholes and other works. Plans, etc., may be seen, and bills of quantities, etc., obtained, at the offices of the engineer, Mr. J. T. Eayrs, M.Inst.C.E., Clarence-chambers, 39, Corporation-street, Birmingham, on production of a receipt for a deposit of 2*l.*, which must be paid to the Council's Treasurer, Mr. E. H. Wedgwood, Lloyd's Bank, Oldbury.

FEBRUARY 28.—**Hythe, Kent.**—ROAD.—The Sandling, Saltwood, and Hythe Estate Company invite tenders for the construction of a new road. Plans, etc., may be seen, and schedule of quantities obtained, on application to Mr. Chris. Jones, C.E., 54, High-street, Hythe, Kent.

FEBRUARY 28. — **Rhondda.** — WIDENING ROADS.—Rhondda U.D.C. invite tenders for the following works, viz.:—(1) Widening and improvement of the road adjoining the new recreation ground at Penygraig; (2) Widening and improvement of part of Baglan-street, Treherbert. Plans may be seen, and specifications, etc., obtained, at the Public Offices, Pentre, Rhondda, on depositing the sum of 1*l.* 1s. for each contract.

FEBRUARY 29.—**Prestwich.**—STREET IMPROVEMENTS.—Prestwich U.D.C. invite tenders for the carrying out of works of private street improvement in eighteen streets. Conditions of contract can be inspected at the surveyor's office, Chester Bank, Prestwich. Copies of the bills of quantities, etc., can be obtained from the surveyor on payment of 2*l.* 2s.

FEBRUARY 29. — **Whitton.**—SEWER, ETC.—Stockton R.D.C. invite tenders for the construction of a 9-in. pipe sewer and sewage disposal works at Carlton Iron Works, in the Parish of Whitton. Plans, etc., may be seen at the office of Mr. John Rodham, Finkle-street, Stockton-on-Tees (Surveyor to the said Council).

MARCH 2. — **Bradfield.** — ROAD REPAIRS.—Bradfield R.D.C. invite tenders for the repair of the district roads in the parishes of Bucklebury, Grazeley, Marlston, Sulhamstead Bannister (lower end), Ufton, and Wokefield. A form of specification, etc., may be obtained on application to Mr. John Forrester, District Surveyor, Theale, near Reading. The Council also invite tenders for carting materials.

MARCH 2. — **Cushendall.** — WATERWORKS.—Ballycastle R.D.C., County Antrim, invite tenders for the

construction of a concrete storage tank, two concrete collecting tanks, the providing and laying of about 1,866 lin. yds. of 4-in. and 3,720 lin. yds. of 3-in. cast-iron pipes. Plans, etc., may be inspected at the offices of the D.C., Ballycastle.

MARCH 2.—**Dublin.**—PAVING.—Great Northern Railway Company (Ireland) Directors invite tenders for the paving, with square stone setts, of portions of roadway in their Belfast Goods Yard. Plan and specification at the office of Mr. W. H. Mills, Engineer-in-Chief, Amiens-street, Dublin, or copies of them at the office of the District Engineer, Belfast, and can obtain forms of tender on payment of 1s. each.

MARCH 2.—**Erith.**—PRIVATE STREET WORKS.—The U.D.C. of Erith invite tenders for private street works in Clare-road, Erith, and Mayfield Mount and Poplar Mount, Belvedere. Plans, etc., may be seen, and form of tender, etc., obtained, at the office of the Surveyor of the Council, Bexley-road, Erith, upon payment of 1l.

✱ MARCH 2.—**Hendon.**—WORKS AND MATERIALS.—The Hendon U.D.C. invite tenders for materials, etc., for one year from April 1 next. For further particulars see advertisement in this issue.

MARCH 3.—**Bushey.**—STREET IMPROVEMENTS.—The U.D.C. of Bushey invites tenders for the execution of private street improvements in Highfield, Hillside, Grange, and Vale roads, Bushey. Bills of quantities, etc., can be obtained (on payment of 1l. 1s.) on application to the surveyor, at his office, Park-road, Bushey.

MARCH 3.—**New Sarum.**—ROAD WORKS.—New Sarum T.C. invite tenders for executing certain works of levelling, paving, etc., the north end of Meadow-road, between Gas-lane and James-street, and also the south end between St. Paul's-road and the railway. Drawings, etc., can be seen at the office of the City Surveyor, Endless-street.

MARCH 3.—**Redditch.**—SEWAGE WORKS.—Redditch U.D.C. invite tenders for the construction of liquefying tanks, with screening and grit chambers, at their existing outfall works. The Council are also prepared to receive separate tenders for the construction of 440 yds. of 9-in. pipe sewer, with manholes, in the Birmingham-road. Plans, etc., can be examined, and bill of quantities obtained from Mr. Arthur J. Dickinson, Engineer and Surveyor, Council Offices, Redditch, upon payment of 1l. 1s.

MARCH 4.—**Hove.**—PAVING.—Hove Corporation invite tenders for executing paving and other works in Vallance-road (from Church-road to Vallance-gardens), and in Pembroke-crescent (southern and western portions). Further particulars may be obtained, and plans, etc., seen, at the office of the Borough Surveyor, Mr. H. H. Scott.

MARCH 4.—**South Shields.**—STREET WORKS.—South Shields Corporation invite tenders for providing and laying in situ concrete to footways and back streets in the Borough for twelve months ending March 31, 1909—approximate quantity, 5,000 sq. yds. Specification, etc., can be obtained at the office of Mr. S. E. Burgess, M.Inst.C.E., Borough Engineer and Surveyor, Chapter-row, South Shields.

✱ MARCH 4.—**Wanstead.**—MAKING-UP STREETS.—The Wanstead U.D.C. invite tenders for making-up two streets known as Hereford-road and Harpenden-road. For further particulars refer to advertisement in this week's issue.

MARCH 6.—**Dorchester.**—REPAIR OF ROADS.—Dorchester R.D.C. invite tenders for the repair of the district roads for three years. Forms of tenders, etc., may be obtained from the Council's Highway Surveyor, Mr. F. H. Polkinghorne, 2, Dagmar-road, Victoria Park, Dorchester.

MARCH 7.—**Eston.**—ASPHALTING.—The Eston and Normanby Burial Board invite tenders for asphalting about 1,300 yds. of walks in their cemetery. Specifications to be seen at the Cemetery Lodge.

✱ MARCH 9.—**Devizes.**—NEW SEWER.—The Devizes U.D.C. invite tenders for a new sewer, manholes, etc., to serve the Forty Acres District. For further particulars see advertisement in this issue.

NO DATE.—**Blaydon-on-Tyne.**—DRAIN.—The laying of field drain pipes at Seal Burns Farm, Greenside. For particulars apply the Stella Coal Company, Ltd., Blaydon-on-Tyne.

NO DATE.—**Heacham.**—MAKING-UP.—The making-up of Poplar-road, Heacham. Further particulars can be obtained from Mr. Walter J. Pratt, Heacham.

## STONE, MATERIALS, AND STORES.

FEBRUARY 24.—**Halifax.**—MATERIALS.—Halifax Waterworks Committee invite tenders for the supply of (1) cast-iron pipes, (2) lead piping and pig lead, (3) gun-metal fittings. Forms of tender, etc., may be obtained on application to Mr. R. J. Hartley, A.M.Inst.C.E., Waterworks Engineer, Gibbet-street, Halifax.

FEBRUARY 24.—**Holyhead.**—PIPES.—Holyhead Waterworks Company invite tenders for the manufacture and delivery of about 1370 tons of cast-iron pipes and special castings. A copy of the specification, etc., can be obtained at the office of Messrs. H. Rofe & Son, civil engineers, 8, Victoria-street, Westminster, on payment of 5l. 5s.

FEBRUARY 24.—**London.**—SLEEPERS.—Great Western Railway Directors invite tenders for the supply of 100 000 creosoted Baltic sleepers, 130,000 clean ditto, 1,250 loads creosoted Baltic crossing timbers, 1,500 loads clean ditto. Specifications, with form of tender, may be obtained upon application to Mr. G. K. Mills, Secretary, Paddington Station, London.

FEBRUARY 24.—**Penarth.**—MATERIALS.—Penarth U.D.C. invite tenders for the supply of road metalling and gravel. Forms of tender, etc., may be obtained on application from Mr. Edgar J. Evans, A.M.Inst.C.E., Surveyor, District Council Offices.

FEBRUARY 24.—**Penge.**—ANNUAL CONTRACTS.—The U.D.C. of Penge invite tenders for the supply of horse hire; granite, macadam, etc.; brooms, etc.; Kentish flints, etc.; Portland cement, etc. Forms of tender, etc., may be obtained on application to the Surveyor, Town Hall, Anerley, S.E.

FEBRUARY 24.—**Poole.**—MATERIALS.—Tenders are invited for the execution of work and supply of materials. Forms of tender may be obtained on application at office of Mr. Samuel J. Newman, F.R.I.B.A., Borough Surveyor, King-street, Poole.

FEBRUARY 24.—**Radcliffe.**—MATERIALS.—Radcliffe U.D.C. invite tenders for materials and team labour. Forms may be obtained on application to Mr. W. L. Rothwell, Engineer to the Council, and samples inspected at the Town's Yard, Radcliffe.

FEBRUARY 24.—**Rochford.**—ROAD MATERIALS.—Rochford R.D.C. invite tenders for the supply of granite and flints, and for the unloading and carting of the materials. Forms of tender may be obtained from Mr. Frederic Gregson, Clerk, Southend-on-Sea.

FEBRUARY 24.—**Sowerby Bridge.**—SUPPLIES.—The U.D.C. invite tenders for the supply of retorts, firebricks, fireblocks, fireclay, etc. Specifications, etc., can be obtained on application to Mr. A. W. Bissell, Engineer, Gasworks, Sowerby Bridge.

✱ FEBRUARY 25.—**Bridgwater.**—GRANITE, ETC.—The Bridgwater T.C. invite tenders for supply of about 1,550 tons of granite and also 950 tons of limestone, together with about 300 tons of granite chippings. For further particulars see advertisement in this issue.

FEBRUARY 25.—**Esher.**—MATERIALS.—The U.D.C. of Esher and the Dittons invite tenders for supplying during the year ending March 31, 1909:—Kentish brown flints and brick hard core, Hungry Hill flints and Farnham gravel, Quenast granite, lime and cement, stoneware pipes, etc. Forms of tender may be obtained on application to Mr. H. C. Fread, Surveyor to the Council, enclosing a stamped addressed foolscap envelope.

FEBRUARY 25.—**Sale.**—MATERIALS.—Sale U.D.C. invite tenders for the supply of flags (including concrete), kerbs, grit setts, macadam, granite chippings, limestone chippings and cubes, etc. Forms of tender, etc., may be obtained at the office of Mr. William Holt, Engineer and Surveyor, Council Offices, Sale.

FEBRUARY 25.—**Sowerby Bridge.**—MATERIALS.—The U.D.C. invite tenders for the supply of materials. Forms of tender, etc., may be obtained on application to Mr. George E. Wrigley, Engineer's Office, Sowerby Bridge.

✱ FEBRUARY 25.—**Wimbledon, etc.**—FLINTS.—The Wimbledon and Putney Commons Conservators invite tenders for about 1,000 yds. of picked flints. For further particulars see advertisement in this issue.

FEBRUARY 26.—**Tynemouth.**—STONE.—The R.D.C. C.C. Highways Committee invite tenders for the supply and delivery of clean hand-picked field flints on main roads. Forms from Mr. R. J. Thomas, County Surveyor, County Hall, Aylesbury.

FEBRUARY 26.—**Richmond.**—STORES.—Richmond District Asylum Joint Committee of Management invite tenders for the supply of articles for a period of twelve months. Printed forms of tender may be had from the Storekeeper, Richmond Asylum, Grangegorman.

FEBRUARY 26.—**Tynemouth.**—STONE.—The R.D.C. invite tenders for supply of whinstone and limestone road metal. Specifications, etc., may be obtained from Mr. John Waters, District Surveyor, Long Benton, Newcastle-on-Tyne.

FEBRUARY 27.—**Chailey.**—FLINTS, ETC.—The R.D.C. of Chailey invite tenders for the supply of about 4,170 yds. of flints and about 1,460 yds. of quartzite, Kentish rag, Mendip stone, or any kind of granite. Further particulars and forms of tender can be obtained on application to Mr. Charles Patrick, Clerk, Union Offices, West-street, Lewes, or to Mr. H. Kemp Walls, District Surveyor, North Common, Chailey.

FEBRUARY 27.—**Flaxton.**—WHINSTONE.—Flaxton R.D.C. invite tenders for the supply of best blue whinstone, broken and unbroken, and also broken, annealed, and common slag. Mr. Joseph Peters, Clerk to the above Council, 4, New-street, York.

FEBRUARY 27.—**Hampton.**—MATERIALS.—Hampton U.D.C. invite tenders for the supply of road materials. Forms of tender, etc., can be obtained at the offices of the Council, Hampton, Middlesex.

FEBRUARY 27.—**Southampton.**—GOODS.—The Southampton Harbour Board invite tenders from local firms for work and supply of goods. Schedules and forms of tender may be obtained at the offices of the Board, Town Quay, Southampton.

FEBRUARY 27.—**Torquay.**—CEMENT.—Torquay T.C. invite tenders for the supply and delivery of 60 tons of Portland cement. Forms of tender, etc., may be obtained at office of Mr. Henry A. Garrett, A.M.Inst.C.E., Borough Engineer, Town Hall-chambers, upon a deposit of 10s. 6d.

FEBRUARY 28.—**Belfast.**—GRAN'TE BLOCKS, ETC.—Belfast Corporation Works Committee invite tenders for the supply of 1,000 lin. yds. granite crossing blocks and 2,000 lin. yds. granite curbstones. Specification, etc., may be obtained from the Superintendent of Works Office, City Hall.

FEBRUARY 28.—**Heaton Norris.**—MATERIALS.—The U.D.C. of Heaton Norris invite tenders for the supply and delivery of materials and stores. Forms of tender to be obtained from Mr. F. W. Brooke, Clerk to the Council, Council Offices, Heaton Moor.

FEBRUARY 29.—**Ardsley.**—ROAD MATERIALS.—Ardsley U.D.C. invite tenders for the supply of granite, best furnace slag, whinstone, and slag screenings. Mr. Chas. McNaughton, Clerk to the Council, Barnsley.

FEBRUARY 28.—**Swansea.**—IRONWORK, ETC.—The Swansea T.C. invite tenders for the supply of cast-iron pipes and castings, steel tubes, water meters, hydrants, valves, and pig lead. Printed copies of the specifications and forms of tender can be obtained from the Waterworks Engineer, Guildhall, Swansea. A payment of 1l. 1s. must be made for the form of tender for cast-iron pipes and castings.

FEBRUARY 28.—**Swansea.**—STORES.—The Council of the Borough of Swansea invite tenders for stores, stone, etc. Forms of tender, etc., may be obtained at the office of the Borough Surveyor, 13, Somerset-place Swansea.

FEBRUARY 28.—**Walthamstow.**—SUPPLIES, ETC.—The U.D.C. invite tenders for the supply of materials. Forms of tender may be obtained at the Surveyor's Office, Town Hall, Walthamstow, by previously depositing in cash the sum of 1l. 1s. for each form.

FEBRUARY 29.—**Auckland, etc.**—MATERIALS.—Tenders are required for (1) road metal, (2) cartage and team labour, and (3) bass brooms, shovels, spades, handles, concrete and stone kerbs, concrete flags, scoriae bricks, whinstone setts, etc., for the Auckland and Chester main road district. Specifications, etc., may be obtained at the County Surveyor's Office, Shire Hall, Durham.

FEBRUARY 29.—**Billesdon.**—GRANITE.—The R.D.C. of Billesdon invite tenders for the supply of granite and granite chippings. Forms may be obtained at office of Mr. W. E. Richardson, Clerk, 18, New-street, Leicester.

FEBRUARY 29.—**Blackpool.**—ANNUAL CONTRACTS.—The Highway Committee invite tenders for the supply of materials. Specifications, etc., can be obtained from Mr. John S. Brodie, Borough Engineer and Surveyor, Town Hall, Blackpool.

FEBRUARY 29.—**Carlisle.**—STORES.—Carlisle Corporation invite tenders for the supply of stores and materials, etc. Form of tender, etc., may be obtained at the office of Mr. Henry C. Marks, M.Inst.C.E., City Engineer and Surveyor, 36, Fisher-street, Carlisle.

FEBRUARY 29.—**Chingford.**—ANNUAL CONTRACTS.—Chingford U.D.C. invite tenders for:—Broken Quenast, Leicester, or Guernsey granite; (2) for the supply and delivery of stone ballast and hoggin; (3) for the use of steam roller and scarifier. Mr. Leonard C. Bowen, Clerk to the Council, 34, Station-road, Chingford.

FEBRUARY 29.—**Glasgow.**—ROAD METAL.—The supply of metal to the roads in the Lower Ward District of the County of Lanark, also for carting work. Particulars may be obtained on application to Mr. James Rennie, District Road Surveyor, 3, Beechwood-terrace, Sandyhills, Shettleston.

FEBRUARY 29.—**Larne.**—MATERIALS, ETC.—The U.D.C. of Larne invite tenders for work and for the supply of stores for the year ending March 31, 1909. Forms supplied. Mr. W. G. Younge, Clerk of Council, Town Hall, Larne.

FEBRUARY 29.—**Llandaff.**—MATERIALS.—Llandaff and Dinas Powis R.D.C. invite tenders for the supply of tools, castings, general ironmongery, and earthenware pipes during the year ending March 31, 1909. Forms of tender may be obtained on application to the surveyor, Mr. James Holden, A.M.Inst.C.E., 20, Park-place, Cardiff.

FEBRUARY 29.—**Llandaff.**—MATERIALS.—Llandaff and Dinas Powis R.D.C. invite tenders for the supply of mountain limestone and team labour. Forms of tender may be obtained on application to the surveyor, Mr. James Holden, A.M.Inst.C.E., at his office, 20, Park-place, Cardiff.

FEBRUARY 29.—**Middlesbrough.**—BRICKS.—Middlesbrough Sanitary Committee invite tenders for engineering bricks for Tees Valley Sewer. Specification, etc., can be seen, and further particulars obtained, on application at the Borough Engineer's Office.

FEBRUARY 29.—**Newburn.**—ROAD MATERIALS, ETC.—Newburn U.D.C. invite tenders for leading of road materials, for highway materials, and for disinfectants. Samples of materials must be sent to Mr. Thomas Gregory, Surveyor, Council Offices, Newburn, from whom full particulars may be obtained.

FEBRUARY 29.—**Newton-in-Makerfield.**—SUPPLIES.—The U.D.C. invite tenders for the supply of materials for one year. Forms of tender may be obtained from the Stores Clerk, Gasworks, Earlestown.

FEBRUARY 29.—**Spalding.**—PIPES.—Spalding U.D.C. invite tenders for the supply of about three and a half miles of 12-in. cast-iron pipes, with the necessary bends and junctions, also sluice valves, air valves, and washouts. Specification, etc., may be obtained of Mr. John Bailey, Town Surveyor, Spalding, by letter containing stamped addressed envelope, with which must be enclosed the sum of 2l. 2s.

✱ FEBRUARY 29.—**Stepney.**—ANNUAL CONTRACTS.—The Stepney Borough Council invite tenders for contracts for one year from March 31 next. For further particulars see advertisement in this issue.

FEBRUARY 29.—**Wimbledon.**—ANNUAL CONTRACTS.—The Corporation invite tenders for the supply and execution of materials, works, etc. Forms of specification, etc., may be obtained on application to the Borough Engineer and Surveyor, Town Hall, Wimbledon.

MARCH 2.—**Beverley.**—STONE.—The Highways and Bridges Committee of the East Riding C.C. invite tenders for the supply of about 6,000 tons of stone. Conditions, etc., may be obtained on application to the County Surveyor, Beverley.

MARCH 2.—**Bolton-upon-Dearne.**—SUPPLY OF MATERIALS.—Tenders are invited by the U.D.C. for the supply of materials. Form of tender may be obtained from Mr. J. Ledger Hawksworth, Council Offices, Station-road, Bolton-upon-Dearne, Rotherham.

MARCH 2.—**Carlisle.**—STORES.—The Gas Committee invite tenders for the supply of stores, etc. Forms, etc., will be supplied on application at the Gas Works.

MARCH 2.—**Castle Ward.**—MATERIAL AND WORKS.—The R.D.C. of Castle Ward invite tenders for supplying, quarrying, breaking, leading, and laying on materials required for the several highways in the district. Also for supplying broken whinstone and delivering same. Full particulars and forms of tender may be obtained from the surveyor, Mr. David Hope, Ponteland.

MARCH 2.—**Erith.**—MATERIALS.—Erith U.D.C. invite tenders for the supply of materials, etc. Form of contract may be seen, and forms of tender obtained, at the offices of the Council.

MARCH 2.—**Finchley.**—ANNUAL CONTRACTS.—The U.D.C. of Finchley invite tenders for materials. Forms of tender, etc., may be had on application at the offices of Mr. E. H. Lister, Clerk to the Council, Council Offices, Finchley, N.

MARCH 2.—**Hendon.**—MATERIALS.—Hendon U.D.C. invite tenders for the supply of materials, etc. Specifications, etc., obtained of Mr. S. Slater Grimley, Engineer and Surveyor to the Council. A deposit of 2l. 2s. will be required for the form of tender for house drainage work only.

MARCH 2.—**Heston.**—MATERIALS.—Heston and Isle-

worth U.D.C. invite tenders for the supply of materials. Forms of tender may be obtained from Mr. J. G. Carey, Surveyor, Council House, Hounslow, W.

MARCH 2.—**Midsomer Norton.**—ROAD MATERIAL, ETC.—The U.D.C. invite tenders for the supply and delivery of road stone, etc., haulage and team labour, steam rolling, and scarifying. Conditions, etc., may be obtained from the Surveyor to the Council, Town Hall, Midsomer Norton.

MARCH 2.—**Oxendon.**—STONE.—Oxendon R.D.C. invite tenders for the supply of stone and gravel and slag. Particulars, etc., may be obtained on application to Mr. W. J. Smith, Surveyor, Rothwell House, Market Harborough.

MARCH 2.—**Tenterden.**—MATERIALS.—Tenterden T.C. invite tenders for the supply and delivery of picked flints, Kent ragstone, and ragstone chippings. Also for mason's work in the borough. Further particulars and forms of tender to be obtained of Mr. W. L. C. Turner, Borough Surveyor, Town Hall, Tenterden.

MARCH 2.—**West Hampnett.**—ROAD MATERIAL.—The R.D.C. invite tenders for road material. Forms to be obtained from Mr. William Parker Cogan, Clerk to the Council, 5, South-street, Chichester.

MARCH 2.—**Whitley.**—STONE.—Whitley and Monkseaton U.D.C. invite tenders for:—(*a*) The supply of whinstone; (*b*) the supply of slag; and (*c*) team labour. Specifications can be seen, and form of tender obtained, on application to Mr. John Moore, Council Offices, Whitley Bay, R.S.O.

MARCH 3.—**Colne.**—MATERIALS.—Colne Highways and Streets Committee invite tenders for the supply and delivery of materials, and also for the repair of highways and the leading of limestone. Specifications, etc., may be obtained on application at the office of the Borough Surveyor, Mr. T. H. Hartley, Town Hall, Colne.

MARCH 3.—**King's Norton.**—SUPPLIES.—King's Norton and Northfield U.D.C. invite tenders for supplies and stores. Forms of tender may be obtained, and samples of all goods and materials may be seen, at the Council's Depôt, Silver-street, King's Heath.

MARCH 3.—**Portland.**—GRANITE.—Portland U.D.C. invite tenders for the supply of about 3,000 tons of 1½-in. or 2-in. broken granite or basalt. Copies of specification and form of tender may be obtained at the office of Mr. R. Stevenson Henshaw, C.E., Engineer and Surveyor, Council Offices, New-road, Portland.

MARCH 3.—**Shoreditch.**—CONTRACTS.—Shoreditch B.C. invite proposals for articles and works for one year. Forms of tender can be obtained on application to Mr. H. Mansfield Robinson, Town Clerk, Shoreditch Town Hall, Old-street, E.C.

MARCH 3.—**Smallburgh.**—ROAD MATERIALS.—The R.D.C. invite tenders for the supply of road materials. Further particulars, etc., may be obtained on application to the District Surveyor, Mr. W. L. Lewis, Stalham.

MARCH 3.—**Southgate.**—ANNUAL CONTRACTS.—The U.D.C. of Southgate invite tenders for:—(1) The supply and delivery of 3,000 tons (more or less) of granite; (2) carting; (3) paving works; also for the supply and delivery of goods. Specifications of each class of goods required, forms of tender, etc., may be obtained on application to Mr. C. G. Lawson, C.E., the Council's Surveyor.

MARCH 3.—**Tottenham.**—MATERIALS.—Tottenham U.D.C. invite tenders for the supply of road materials, lime and cement, etc. Specifications, etc., can be obtained on application to Mr. Edward Crowne, Clerk of the Council, at the Council Buildings, The Green, Tottenham. Deposit with the Treasurer a Bank of England note or cash for 5*l.*

MARCH 4.—**Birmingham.**—MATERIALS.—Birmingham Corporation invite tenders for supply of slack, iron and steel ware, belting, timber, brushes, drysaltery, and miscellaneous stores. Specifications and forms of tender may be obtained on application to the Superintendent, Montague-street Wharf.

MARCH 4.—**Edinburgh.**—MATERIALS.—Edinburgh Corporation invite offers for works and supplies for one year. Forms may be obtained from the Superintendent of Works, Royal Exchange; the City Road Surveyor, City-chambers; the Resident Electrical Engineer, Dewar-place; the Inspector of Cleaning and Lighting, 331, High-street; the Burgh Engineer, Police-chambers.

MARCH 4.—**Northampton.**—ROAD MATERIALS.—The R.D.C. invite tenders for the supply of Hartshill, Groby, Tuttle Hill, Mount Sorrell, and other granite and slag, and also price for chippings. Mr. W. Tomalin, Clerk, 14, Guildhall-road, Northampton.

MARCH 5.—**Belfast.**—STORES.—Belfast Works Committee invite tenders for the supply of stores and work for a year. Forms of tender and particulars may be had in the Superintendent of Works Office, City Hall.

MARCH 5.—**Bristol.**—MATERIALS.—Tenders are invited from local tradesmen for the supply of materials necessary for use upon the city estates. Forms supplied by Mr. Peter Addie, City Valuer, The Exchange, Bristol.

MARCH 7.—**Holborn.**—WORKS AND MATERIALS.—Holborn B.C. invite tenders for the execution of works and the supply of materials for a period of twelve months. Forms of the several contracts may be seen, and forms of tender and other particulars obtained, at office of Mr. Lionel Walford, Town Clerk, Council Offices, 197, High Holborn, W.C.

MARCH 7.—**Manchester.**—MATERIALS.—Manchester Corporation (Withington Committee) invite tenders for the supply of materials. For forms of tender, etc., apply to the Surveyor, Town Hall, West Didsbury, Manchester.

MARCH 7.—**Warrington.**—MATERIALS.—The Sanitary Works Committee invite tenders for the supply of materials. Specification, etc., obtained from the office of the Cleansing Superintendent, Central Sanitary Depôt, Warrington, on payment of 10s. per section.

MARCH 7.—**Warrington.**—MATERIALS.—Warrington Sanitary Works Committee invite tenders for the supply of materials for Longford Depôt. Mr. R. Wilson, Manager, Longford Depôt, Warrington.

MARCH 9.—**Barnes.**—ANNUAL CONTRACTS.—The U.D.C. invite tenders for the supply of materials. Particulars, etc., may be obtained of the Engineer and Surveyor at the Council House.

MARCH 9.—**Eastbourne.**—MATERIALS.—Eastbourne T.C. invite tenders for the supply of Portland cement, cast-iron goods, wrought-iron goods, tools, etc. Specifications may be seen, and forms of tender obtained, at the Borough Surveyor's Office, Town Hall, Eastbourne.

MARCH 9.—**Finsbury.**—WORK AND MATERIALS.—Finsbury B.C. invite tenders for the supply of work and articles. Particulars, etc., may be had on application at the Borough Surveyor's Department at the Town Hall, Rosebery-avenue, E.C.

MARCH 10.—**London.**—MATERIALS.—The Guardians of the Parish of St. Mary, Islington, invite tenders for the supply of articles, etc. Printed forms of tender must be obtained from the Clerk personally (Mr. Edwin Davey, Guardians' Offices, St. John's-road, Upper Holloway, N.) or a stamped addressed brief-size envelope may be sent.

* MARCH 11.—**Fulham.**—STORES, ETC.—The Fulham B.C. invite tenders for the supply of various stores, etc. For further particulars see advertisement in this issue.

MARCH 12.—**Dublin.**—MATERIALS.—The Commissioners of the Irish Lights invite tenders for the supply at their store premises, Kingstown, co. Dublin, of articles required during the year. Patterns of the different articles required can be seen at the Lighthouse Stores, Kingstown, co. Dublin.

MARCH 12.—**Eastbourne.**—STONE, ETC.—Eastbourne R.D.C. invite tenders for the supply of road materials for granite kerbing and setts, and for cartage. Forms of tender may be obtained from Mr. T. E. Varley Kirtlan, Clerk to the Council, 92, Terminus-road, Eastbourne, or Mr. C. M. Carter, Down View, Polegate, on forwarding stamped addressed foolscap envelope.

MARCH 13.—**Reading.**—MATERIALS.—Reading Corporation invite tenders for the supply for a term of one year of stores and works. Forms of tender on application at office of Mr. John Bowen, A.M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Reading.

MARCH 18.—**Strood.**—MATERIALS.—Strood R.D.C. invite tenders for highway materials and carting. Full particulars may be obtained on application to Mr. J. E. Povey, Clerk, Council Offices, Strood, Kent.

MARCH 20.—**Eccles.**—MATERIALS.—The Eccles Corporation invite tenders for the supply of materials. Forms of tender, etc., may be obtained upon application to Mr. Thomas S. Picton, C.E., Borough Engineer and Surveyor.

MARCH 21.—**Dunfermline.**—STONE.—The Dunfermline District Committee of the Fife C.C. invite tenders for the quarrying and handbreaking of quantities of stone in their undermentioned whinstone quarries. Copies of the specification, etc., may be obtained at the office of Mr. David Mackenzie, C.E., District Road Surveyor, County Buildings, Dunfermline.

MARCH 21.—**Formby.**—ANNUAL CONTRACTS.—The Formby U.D.C. invite tenders for the supplying of materials. Specification, etc., may be obtained on application to the Surveyor, Mr. A. W. Pattison. Each application must be accompanied with a stamped addressed envelope.

MARCH 24.—**Wembley.**—SUPPLIES.—Wembley U.D.C. invite tenders for the supply of materials for the year. Forms of tenders, etc., can be obtained from Mr. Fredk. W. Rodd, Clerk to the Council, by forwarding a stamped addressed foolscap envelope.

NO DATE.—**Gainsborough.**—ROAD METAL.—The R.D.C. of Gainsborough invite tenders for the supply of road metal—about 10,000 tons of granite and tar macadam and about 1,000 tons of slag. Specifications, etc., may be obtained on application to Mr. Richard Maxwell, Surveyor, Lea-road, Gainsborough.

NO DATE.—**Knaresborough.**—TOOLS, ETC.—Tenders are invited for the supply of tools for whitesmith and fitter. Particulars may be had on application to the Workhouse Master, Poor Law Offices, Knaresborough.

NO DATE.—**Staines.**—MATERIALS.—Staines R.D.C. invite tenders for the supply of broken road stone. Particulars may be obtained upon application to the Surveyor to the Council, Mr. Geo. W. Manning, Surveyor's Offices, London-road, Stanwell, Staines.

NO DATE.—**Wakefield.**—WIRE ROPE.—The Electricity Department of the Corporation invite tenders for the supply of 1,700 ft. of second-hand wire ropes, size 1¼ in. to 1½ in. diameter. Price to be for ropes delivered at Electricity Works, Wakefield.

## Public Appointment.

| Nature of Appointment. | By whom Advertised. | Salary. | Application to be in |
|---|---|---|---|
| *CLERK OF WORKS | Richmond (Surrey) T.C. | 3*l.* 10s. per week | Feb. 26 |

## Auction Sales.

| Nature and Place of Sale. | By whom Offered. | Date of Sale. |
|---|---|---|
| *DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C. | Churchill & Sims | Feb. 26 |
| *FOREIGN TIMBER—Bentick Dock, King's Lynn | Robert W. Reeve | March 3 |
| *FREEHOLD ESTATE, FARRINGDON-ROAD, E.C.—At the Mart | Green & Son | March 20 |
| *CITY FREEHOLD, CANNON-STREET, E.C.—At the Mart | Green & Son | do. |
| *FREEHOLD BUILDING ESTATES—At the Mart | Ferris & Puckridge | April 10 |
| *BUILDING ESTATE, ENFIELD—At the Mart | Walton & Lee | May 5 |

PATENTS.—*Continued from page 223.*

23,417 of 1907.—J. H. MCCALL: *Dry-closets Fitted with Incinerating Apparatus.*

This relates to a sanitary appliance, comprising a combustion chamber having an excrement-catching device therein, a privy-box in co-operative communication with said chamber, means for closing communication between the privy-box and catching device when it is desired to incinerate the contents of said device, and for opening communication between the privy-box and catching device to obtain a deposit of matters in said device from said box, and a second combustion chamber adjacent with and in communication with said first combustion chamber.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

February 6.—By ROBT. W. FULLER, MOON, & FULLER (at Croydon).

| | |
|---|---|
| Croydon.—12 and 14, Drayton-rd., f., w.r. 39*l.* | £340 |
| 13, 14, 15, and 16, Upper Drayton-pl., f., w.r. 72*l.* 16s. | 700 |

February 11.—By HUNTER & HUNTER.

| | |
|---|---|
| Bloomsbury.—7 and 8, Heathcote-st., u.t. 10 yrs., g.r. 15*l.*, y. and e.r. 110*l.* | 765 |
| Marylebone.—62, Balcombe-st. (s.), u.t. 13 yrs., g.r. nil, y.r. 60*l.* | 210 |
| Chelsea.—42 and 43, Oakley-cres., u.t. 45 yrs., g.r. 12*l.*, y.r. 86*l.* | 710 |
| Clapham.—13 and 14, The Pavement (s.), f., y.r. 175*l.* 10s. | 2,620 |

February 12.—By J. H. BRADWELL & SONS (at Nottingham).

| | |
|---|---|
| Ruddington, Notts.—Part of the Rudding Hall Estate, 362 a. 2 r. 8 p., f. | £20,015 |

February 13.—By JOHN G. DEAN & CO.

| | |
|---|---|
| Pimlico.—91A, Grosvenor-rd., u.t. 29 yrs., g.r. 8*l.*, w.r. 89*l.* 14s. | 450 |

By MARTIN, WHITE, & CO.

| | |
|---|---|
| Dulwich.—11, East Dulwich-rd., f.; also f.g.r. 12*l.* 10s., reversion in 11 yrs. | 1,300 |
| Peckham.—11, Basing-rd., f., w.r. 26*l.* | 255 |

By REYNOLDS & EASON.

| | |
|---|---|
| Finsbury.—71, Whitecross-st., and 13, 14, and 15, Red Lion-market, f., area 1,500 ft., p. | 1,500 |
| Somers Town.—57½, Charrington-st., u.t. 15 yrs., g.r. 5*l.* 5s., y.r. 55*l.* | 185 |

February 14.—By WILTSHIRE & CO.
Old Kent Road.—36 to 44 (even), Penarth-st. (s.), u.t. 50 yrs., g.r. 25*l.*, y. and w.r. 155*l.* 4s. £750

*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.


## PUBLISHER'S NOTICES.

Nat. Tel., 6112 Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME XCIII. (July to December, 1907) was given as a supplement with the Number for January 11, 1908.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

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Advertisements for the current week's issue are received up to ONE p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after TWELVE NOON on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have *Replies addressed to the* OFFICE, 4, CATHERINE ST., STRAND, W.C., *free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

N.B.—The Reply Boxes are not intended for trade lists, circulars, and the like; should these be received, they cannot (if noticed) be forwarded.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.


## MEETINGS.

FRIDAY, FEBRUARY 21.

*Architectural Association.*—Mr. Edward Warren on "Oxford." 7.30 p.m.

*Royal Institution.*—Sir Oliver Lodge on "The Ether of Space." 9 p.m.

*Institution of Civil Engineers (Students' Meeting).*—Mr. Gerald O. Case on "Currents as a Cause of Coast-Erosion." 8 p.m.

*Royal Academy of Arts.*—Viscount Dillon on "Arms and Armour in Painting and Sculpture." 4 p.m.

SATURDAY, FEBRUARY 22.

*Royal Institution.*—Mr. Selwyn Brinton, M.A., on "The Art of Florence."—II. 3 p.m.

*Junior Institution of Engineers.*—Visit to King's College, Strand, for inspection of Experimental Apparatus, etc. 3 p.m.

MONDAY, FEBRUARY 24.

*Surveyors' Institution.*—Mr. W. G. S. Rolleston on "The Small Holdings and Allotments Act, 1907." 8 p.m.

*University of London (South Kensington).*—Mr. Banister Fletcher on "Westminster Abbey, Winchester and Norwich Cathedrals." 8 p.m.

*Royal Society of Arts (Cantor Lecture).*—Mr. H. Hardinge Cunynghame, C.B., on "The Theory and Practice of Clockmaking."—Lecture VI. 8 p.m.

TUESDAY, FEBRUARY 25.

*Institution of Civil Engineers.*—Mr. W. B. Parsons on "The New York Rapid-Transit Subway." 8 p.m.

*Royal Society of Arts (Colonial Section).*—Sir Hanbury Brown, K.C.M.G., on "Irrigation in Egypt under British Direction." 4.30 p.m.

WEDNESDAY, FEBRUARY 26.

*Architectural Association Discussion Section.*—In consequence of the Musical Society Play having been fixed for February 26, it has been found necessary to abandon the meeting of the Discussion Section fixed for that evening.

*Northern Architectural Association (Students' Meetings).*—Mr. H. L. Hicks on "Some Norfolk Churches." 7.30 p.m.

*Institution of Civil Engineers.*—Students' visit to the Neptune Works of Messrs. Siebe, Gorman, & Co., Ltd., Boniface-street, Lambeth, S.E.

*Royal Society of Arts.*—Prof. H. S. Hele-Shaw, LL.D., F.R.S., and Mr. Douglas Mackenzie on "The Problem of Road Construction, with a View to Present and Future Requirements." 8 p.m.

THURSDAY, FEBRUARY 27.

*Carpenters' Hall, London Wall.*—Mr. R. Kearton on "Wild Nature's Ways." 8 p.m.

*Royal Institution.*—Professor W. Somerville, M.A., D.Sc., on "Wood, its Botanical and Technical Aspects."—II. 3 p.m.

FRIDAY, FEBRUARY 28.

*Incorporated Association of Municipal and County Engineers.*—Metropolitan District Meeting, to be held at the Caxton Hall (Room 13), Westminster. Discussion on the following papers: (1) "Construction of Public Baths," by Mr. T. W. Aldwinckle, F.R.I.B.A.; (2) "Continuous Filtration of Bath Water," by Mr. R. J. Angel, M.Inst.C.E., Borough Engineer, Bermondsey." 7 p.m.

*Glasgow Architectural Craftsmen's Society.*—Mr. A. T. Heathcote on "The Architectural Criticisms of Ruskin." 8 p.m.

*Royal Society of Arts (Shaw Lecture on Industrial Hygiene).*—Dr. John Scott Haldane, M.A., M.D., M.R.C.P. (Edin.), F.R.S., on "The Removal of Dust and Fumes in Factories." 8 p.m.

SATURDAY, FEBRUARY 29.

*Builders' Foremen and Clerks of Works' Institution.*—Annual Dinner, King's Hall, Holborn Restaurant. 6 p.m.

*Royal Institution.*—Mr. Selwyn Brinton, M.A., on "The Art of Florence."—III. 3 p.m.

*Institute of Sanitary Engineers.*—Visit to Southwark Refuse Disposal Works, Manor-place, Walworth-road.


### TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, and Canada 21s. 6d. (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

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## PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

### BRICKS, &c.

| | £ s. d. | |
|---|---|---|
| Hard Stocks | 1 6 0 | per 1000 alongside, in river. |
| Rough Stocks and Grizzles | 1 5 0 | " " " |
| Picked Stocks for Facings | 2 10 0 | " delivered. |
| Flettons | 1 5 6 | " at railway depôt. |
| Red Wire Cuts | 1 14 0 | " " " |
| Best Fareham Red | 3 12 0 | " " " |
| Best Red Pressed Ruabon Facing | 5 0 0 | " " " |
| Best Blue Pressed Staffordshire | 3 15 0 | " " " |
| Do. Bullnose | 4 0 0 | " " " |
| Best Stourbridge Fire Bricks | 3 14 0 | " " " |
| GLAZED BRICKS. | | |
| Best White and Ivory Glazed Stretchers | 12 0 0 | " " " |
| Headers | 11 0 0 | " " " |
| Quoins, Bullnose, and Flats | 16 0 0 | " " " |
| Double Stretchers | 19 0 0 | " " " |
| Double Headers | 16 0 0 | " " " |
| One Side and two Ends | 19 0 0 | " " " |
| Two Sides and one End | 20 0 0 | " " " |
| Splays, Chamferred, Squints | 20 0 0 | " " " |
| Best Dipped Salt Glazed Stretchers, and Header | 12 0 0 | " " " |
| Quoins, Bullnose, and Flats | 14 0 0 | " " " |
| Double Stretchers | 15 0 0 | " " " |
| Double Headers | 14 0 0 | " " " |
| One Side and two Ends | 15 0 0 | " " " |
| Two Sides and one End | 15 0 0 | " " " |
| Splays, Chamferred, Squints | 14 0 0 | " " " |
| Second Quality White and Dipped Salt Glazed | 2 0 0 | " less than best. |

| | s. d. | |
|---|---|---|
| Thames and Pit Sand | 6 6 | per yard, delivered. |
| Thames Ballast | 5 0 | " " |
| Best Portland Cement | 30 0 | per ton, " |
| Best Ground Blue Lias Lime | 19 6 | " " |

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

### STONE.

| | s. d. | |
|---|---|---|
| BATH STONE—delivered on road waggons, Paddington Depôt | 1 6½ | per ft. cube. |
| Do. do. delivered on road waggons, Nine Elms Depôt | 1 8½ | " " |
| PORTLAND STONE (20 ft. average)— | | |
| Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf | 2 1 | " " |
| White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf | 2 2½ | " " |

| | s. d. | |
|---|---|---|
| Ancaster in blocks | 1 10 | per ft. cube, deld. rly. depôt. |
| Beer " | 1 6 | " " |
| Greenshill " | 1 10 | " " |
| Darley Dale in blocks | 2 4 | " " |
| Red Corsehill " | 2 2 | " " |
| CloseburnRed Freestone | 2 0 | " " |
| Red Mansfield " | 2 4 | " " |

### STONE (*continued*).

YORK STONE—*Robin Hood Quality.*

| | s. d. | |
|---|---|---|
| Scappled random blocks | 2 10 | per ft. cube, deld. rly. depot. |
| 6 in. sawn two sides landings to sizes (under 40 ft. super.) | 2 3 | per ft. super., " |
| 6 in. rubbed two sides ditto, ditto | 2 6 | " " |
| 3 in. sawn two sides slabs (random sizes) | 0 11½ | per ft. cube, " |
| 2 in. to 2½ in. sawn one side slabs (random sizes) | 0 7½ | " " |
| 1½ in. to 2 in. ditto, ditto | 0 6 | " " |
| HARD YORK— | | |
| Scappled random blocks | 3 0 | " " |
| 6 in. sawn two sides landings to sizes (under 40 ft. super.) | 2 8 | per ft. super. " |
| 6 in. rubbed two sides ditto | 3 0 | " " |
| 3 in. sawn two sides slabs (random sizes) | 1 2 | " " |
| 2 in. self-faced random flags | 0 5 | " " |

### SLATES.

| In. In. | £ s. d. | |
|---|---|---|
| 20×10 best blue Bangor | 13 2 6 | per 1000 of 1200 at r. d. |
| 20×12 " " | 13 17 6 | " " |
| 20×10 first quallty,, | 13 0 0 | " " |
| 20×12 " " | 13 15 0 | " " |
| 16×8 " " | 7 5 0 | " " |
| 20×10 best blue Portmadoc | 12 12 6 | " " |
| 16×8 " " | 6 12 6 | " " |
| 20×10 best Eureka unfading green | 15 17 6 | " " |
| 20×12 " | 18 7 6 | " " |
| 18×10 " | 13 5 0 | " " |
| 16×8 " | 10 5 0 | " " |
| 20×10 permanent green | 11 12 6 | " " |
| 18×10 " " | 9 12 6 | " " |
| 16×8 " " | 6 12 6 | " " |

### TILES.

| | s. d. | |
|---|---|---|
| Best plain red roofing tiles | 42 0 | per 1000 at rly. depôt. |
| Hip and Valley tiles | 3 7 | per doz. " |
| Best Broseley tiles | 50 0 | per 1000 " |
| Do. Ornamental tiles | 52 6 | " " |
| Hip and Valley tiles | 4 0 | per doz. " |
| Best Ruabon red, brown, or brindled do. (Edwards) | 57 6 | per 1000 " |
| Do. Ornamental do. | 60 0 | " " |
| Hip tiles | 4 0 | per doz. " |
| Valley tiles | 3 0 | " " |
| Best Red or Mottled Staffordshire do. (Peakes) | 51 9 | per 1000 " |
| Do. Ornamental do. | 54 6 | " " |
| Hip tiles | 4 1 | per doz. " |
| Valley tiles | 3 8 | " " |
| Best "Rosemary" brand plain tiles | 48 0 | per 1000 " |
| Best Ornamental tiles | 50 0 | " " |
| Hip tiles | 4 0 | per doz. " |
| Valley tiles | 3 8 | " " |
| Best "Hartshill" brand plain tiles, sand-faced | 50 0 | per 1000 " |
| Do. pressed | 47 6 | " " |
| Do. Ornamental do. | 50 0 | " " |
| Hip tiles | 4 0 | per doz. " |
| Valley tiles | 3 6 | " " |

### WOOD.

| BUILDING WOOD. | At per standard. £ s. d. | £ s. d. |
|---|---|---|
| Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in. | 13 10 0 | ... 15 0 0 |
| Deals: best 3 by 9 | 13 0 0 | ... 14 0 0 |
| Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in. | 11 0 0 | ... 12 0 0 |
| Battens: best 2½ by 6 and 3 by 6 | 0 10 0 | less than 7 in. and 8 in. |
| Deals: seconds | 1 0 0 | less than best. |
| Battens: seconds | 0 10 0 | " " |
| 2 in. by 4 in. and 2 in. by 6 in. | 9 0 0 | ... 10 0 0 |
| 2 in. by 4½ in. and 2 in. by 5 in. | 8 10 0 | ... 9 10 0 |
| Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in. | 0 10 0 | more than battens. |
| ¾ in. | 1 0 0 | " |
| Fir timber: best middling Danzig or Memel (average specification) | At per load of 50 ft. 4 10 0 | ... 5 0 0 |
| Seconds | 4 0 0 | ... 4 10 0 |
| Small timber (8 in. to 10 in.) | 3 12 6 | ... 3 15 0 |
| Small timber (6 in. to 8 in.) | 3 0 0 | ... 3 10 0 |
| Swedish balks | 2 10 0 | ... 3 0 0 |
| Pitch-pine timber (30 ft. average) | 4 0 0 | ... 4 15 0 |

| JOINERS' WOOD. | At per standard. £ s. d. | £ s. d. |
|---|---|---|
| White Sea: first yellow deals, 3 in. by 11 in. | 24 0 0 | ... 25 0 0 |
| 3 in. by 9 in. | 22 0 0 | ... 23 0 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 16 10 0 | ... 18 0 0 |
| Second yellow deals, 3 in. by 1 in. | 18 10 0 | ... 20 0 0 |
| " " 3 in. by 9 in. | 17 10 0 | ... 19 0 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 13 10 0 | ... 14 10 0 |
| Third yellow deals, 3 in. by 11 in. and 9 in. | 13 10 0 | ... 15 0 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 11 0 0 | ... 12 0 0 |
| Petersburg first yellow deals, 3 in. by 11 in. | 21 0 0 | ... 22 10 0 |
| Do. 3 in. by 9 in. | 18 0 0 | ... 19 10 0 |
| Battens | 13 10 0 | ... 15 0 0 |
| Second yellow deals, 3in. by 11in. | 16 0 0 | ... 17 0 0 |
| Do. 3 in. by 9 in. | 14 10 0 | ... 16 0 0 |
| Battens | 11 0 0 | ... 12 10 0 |
| Third yellow deals, 3 in. by 11 in. | 13 0 0 | ... 14 0 0 |
| Do. 3 in. by 9 in. | 12 10 0 | ... 14 0 0 |
| Battens | 10 0 0 | ... 11 0 0 |
| White Sea and Petersburg— First white deals, 3 in. by 11 in. | 14 10 0 | ... 15 10 0 |
| " " 3 in. by 9 in. | 13 10 0 | ... 14 10 0 |
| Battens | 11 0 0 | ... 12 0 0 |
| Second white deals, 3in. by 11 in. | 13 10 0 | ... 14 10 0 |
| " " 3 in. by 9 in. | 12 10 0 | ... 13 10 0 |
| " " battens | 10 0 0 | ... 11 0 0 |

### WOOD (*continued*).

| | At per standard. £ s. d. | | £ s. d. |
|---|---|---|---|
| JOINERS' WOOD (*continued*)— | | | |
| Pitch-pine: deals | 18 0 0 | ... | 21 0 0 |
| Under 2 in. thick extra | '0 10 0 | ... | 1 0 0 |
| Yellow pine—First, regular sizes | 44 0 0 | | upwards. |
| Oddments | 32 0 0 | | » |
| Seconds, regular sizes | 33 0 0 | | » |
| Yellow Pine oddments | 28 0 0 | | » |
| Kauri Pine—Planks, per ft. cube | 0 3 6 | ... | 0 5 0 |
| Danzig and Stettin Oak Logs— | | | |
| Large, per ft. cube | 0 3 0 | ... | 0 3 6 |
| Small » » | 0 2 6 | ... | 0 2 9 |
| Wainscot Oak Logs, per ft. cube | 0 5 6 | ... | 0 6 0 |
| Dry Wainscot Oak, par ft. sup. as inch | 0 0 8½ | ... | 0 0 9½ |
| ¾ in. do. do. | 0 0 7 | ... | — |
| Dry Mahogany—Honduras, Tabasco, per ft. super. as inch | 0 0 9 | ... | 0 1 0 |
| Selected, Figury, per ft. super. as inch | 0 1 6 | ... | 0 2 6 |
| Dry Walnut, American, per ft. super. as inch | 0 0 10 | ... | 0 1 0 |
| Teak, per load | 17 0 0 | ... | 22 0 0 |
| American Whitewood Planks, per ft. cube | 0 4 0 | ... | 0 5 0 |
| Prepared Flooring, etc.— | Per square. | | |
| 1 in. by 7 in. yellow, planed and shot | 0 13 6 | ... | 0 17 0 |
| 1 in. by 7 in. yellow, planed and matched | 0 14 0 | ... | 0 18 0 |
| 1¼ in. by 7 in. yellow, planed and matched | 0 16 0 | ... | 1 0 0 |
| 1 in. by 7 in. white, planed and shot | 0 12 0 | ... | 0 14 6 |
| 1 in. by 7 in. white, planed and matched | 0 12 6 | ... | 0 15 0 |
| 1¼ in. by 7 in. white, planed and matched | 0 15 0 | ... | 0 16 6 |
| ¾ in. by 7 in. yellow, matched and beaded or V-jointed brds. | 0 11 0 | ... | 0 13 6 |
| 1 in. by 7 in. » » | 0 14 0 | ... | 0 18 0 |
| ¾ in. by 7 in. white » » | 0 10 0 | ... | 0 11 6 |
| 1 in. by 7 in. » » | 0 12 9 | ... | 0 15 0 |

6 in. at 6d. to 9d. per square less than 7 in.

### JOISTS, GIRDERS, &c.

| | In London, or delivered Railway Vans, per ton. £ s. d. | | £ s. d. |
|---|---|---|---|
| Rolled Steel Joists, ordinary sections | 7 10 0 | ... | 8 0 0 |
| Compound Girders, ordinary sections | 9 10 0 | ... | 10 10 0 |
| Steel Compound Stanchions | 12 0 0 | ... | 13 0 0 |
| Angles, Tees, and Channels, ordinary sections | 9 10 0 | ... | 10 10 0 |
| Fitch Plates | 9 10 0 | ... | 10 10 0 |
| Cast Iron Columns and Stanchions including ordinary patterns | 8 0 0 | ... | 9 0 0 |

### METALS.

| | Per ton, in London. £ s. d. | | £ s. d. |
|---|---|---|---|
| IRON— | | | |
| Common Bars | 8 10 0 | ... | 9 0 0 |
| Staffordshire Crown Bars, good merchant quality | 8 15 0 | ... | 9 5 0 |
| Staffordshire "Marked Bars" | 10 10 0 | ... | — |
| Mild Steel Bars | 8 15 0 | ... | 9 5 0 |
| Hoop Iron, basis price | 9 5 0 | ... | 9 10 0 |
| » » Galvanised | 17 0 0 | ... | — |
| (*And upwards, according to size and gauge.*) | | | |
| Sheet Iron Black— | | | |
| Ordinary sizes to 20 g. | 9 15 0 | ... | — |
| » » 24 g. | 10 15 0 | ... | — |
| » » 26 g. | 12 5 0 | ... | — |
| Sheet Iron, Galvanised, flat, ordinary quality— | | | |
| Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g. | 15 0 0 | ... | — |
| Ordinary sizes to 22 g. and 24 g. | 15 10 0 | ... | — |
| » » 26 g. | 16 10 0 | ... | — |
| Sheet Iron, Galvanised, flat, best quality— | | | |
| Ordinary sizes to 20 g. | 18 0 0 | ... | — |
| » » 22 g. and 24 g. | 18 10 0 | ... | — |
| » » 26 g. | 20 0 0 | ... | — |
| Galvanised Corrugated Sheets— | | | |
| Ordinary sizes, 6 ft. to 8 ft. 20 g. | 14 10 0 | ... | — |
| » » 22 g. and 24 g. | 14 15 0 | ... | — |
| » » 26 g. | 16 5 0 | ... | — |
| Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker | 12 0 0 | ... | — |
| Best Soft Steel Sheets, 22 g. & 24 g. | 13 0 0 | ... | — |
| » » » 26 g. | 15 0 0 | ... | — |
| Cut Nails, 3 in. to 6 in. | 10 10 0 | ... | 11 0 0 |

(Under 3 in., usual trade extras.)

### LEAD, &c.

| | Per ton, in London. £ s. d. | | £ s. d. |
|---|---|---|---|
| LEAD—Sheet, English, 3lb. and up. | 17 15 0 | ... | — |
| Pipe in coils | 18 5 0 | ... | — |
| Soil pipe | 20 15 0 | ... | — |
| Compo pipe | 21 15 0 | ... | — |
| ZINC—Sheet— | | | |
| Vieille Montague ton | 28 0 0 | ... | — |
| Silesian | 27 15 0 | ... | — |
| COPPER— | | | |
| Strong Sheet per lb. | 0 1 1 | ... | — |
| Thin » | 0 1 2 | ... | — |
| Copper nails » | 0 0 11 | ... | — |
| Copper wire » | 0 0 10 | ... | — |
| BRASS— | | | |
| Strong Sheet » | 0 1 0 | ... | — |
| Thin » | 0 1 1 | ... | — |
| TIN—English Ingots » | 0 1 4 | ... | — |
| SOLDER—Plumbers' » | 0 0 7 | ... | — |
| Tinmen's » | 0 0 9 | ... | — |
| Blowpipe » | 0 0 11 | ... | — |

### ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

| | |
|---|---|
| 15 oz. thirds | 2½d. per ft. delivered. |
| » fourths | 1½d. » » |
| 21 oz. thirds | 3½d. » » |
| » fourths | 2½d. » » |
| 26 oz. thirds | 4½d. » » |
| » fourths | 3½d. » » |
| 32 oz. thirds | 5d. » » |
| » fourths | 4½d. » » |
| Fluted Sheet, 15 oz. | 3½d. » » |
| » 21 oz. | 4½d. » » |

### ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

| | |
|---|---|
| ⅛ Hartley's | 2½d. per ft. delivered. |
| 3/16 » | 2½d. » » |
| ¼ » | 3d. » » |
| Figured and Oxford Rolled "Oceanic" Glass, white | 4d. » » |
| Do. » tinted | 5½d. » » |

### OILS, &c.

| | | £ s. d. |
|---|---|---|
| Raw Linseed Oil in pipes | per gallon | 0 2 1 |
| » » » in barrels | » | 0 2 2 |
| » » » in drums | » | 0 2 3 |
| Boiled » in pipes | » | 0 2 2 |
| » » » in barrels | » | 0 2 3 |
| » » » in drums | » | 0 2 4 |
| Turpentine in barrels | » | 0 3 3 |
| » in drums | » | 0 3 5 |
| Genuine Ground English White Lead | per ton | 22 10 0 |
| Red Lead, Dry | » | 22 0 0 |
| Best Linseed Oil Putty | per cwt. | 0 7 0 |
| Stockholm Tar | per barrel | 1 12 0 |

### VARNISHES, &c.

| | Per gallon. £ s. d. |
|---|---|
| Fine Pale Oak Varnish | 0 8 0 |
| Pale Copal Oak | 0 10 6 |
| Superfine Pale Elastic Oak | 0 12 6 |
| Fine Extra Hard Church Oak | 0 10 0 |
| Superfine Hard-drying Oak, for seats of Churches | 0 14 0 |
| Fine Elastic Carriage | 0 12 6 |
| Superfine Pale Elastic Carriage | 0 16 0 |
| Fine Pale Maple | 0 16 0 |
| Finest Pale Durable Copal | 0 18 0 |
| Extra Pale French Oil | 1 1 0 |
| Eggshell Flatting Varnish | 0 18 0 |
| White Copal Enamel | 1 4 0 |
| Extra Pale Paper | 0 12 0 |
| Best Japan Gold Size | 0 10 6 |
| Best Black Japan | 0 16 0 |
| Oak and Mahogany Stain | 0 9 0 |
| Brunswick Black | 0 8 0 |
| Berlin Black | 0 16 0 |
| Knotting | 0 10 9 |
| French and Brush Polish | 0 10 6 |

## TO CORRESPONDENTS.

**NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.**

**We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.**

**Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.**

**All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.**

**We are compelled to decline pointing out books and giving addresses.**

**Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.**

**All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.**

## TENDERS.

**Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]**

*** Denotes *accepted*. † Denotes *provisionally accepted*.**

BIRKENHEAD.—For erecting a tapestry manufactory, Norman-street, for Messrs. Arthur W. Lee & Sons. Mr. J. R. Mewton, architect, 59, Hamilton-square, Birkenhead:—

| | | | |
|---|---|---|---|
| J. Thomas | £6,100 | Spencer | £5,400 |
| G. L. Desoer | 6,075 | G. Woods & Sons | 5,399 |
| J. Merritt | 5,975 | A. Lloyd | 5,390 |
| Hughes & Stirling | 5,940 | J. E. Gabbutt | 5,376 |
| R. Allen | 5,890 | W. H. Forde | 5,300 |
| Kirkup & Gaskell | 5,690 | W. Hall & Sons | 5,297 |
| G. Ellidge | 5,675 | A. G. Boulton, Easton-road, New Ferry* | 5,200 |
| G. P. Snape | 5,600 | | |
| P. Rothwell | 5,585 | | |

BRAUNTON (Devon).—For extension of Heanton-street sewer, for the Barnstaple Rural District Council. Mr. Eric G. Kingwell, Surveyor. Quantities by Surveyor:—

| | | | |
|---|---|---|---|
| Carter & Morrish | £225 | H. Slee & Son, Braunton* | £219 |
| Tucker Bros. | 220 | | |

[Surveyor's estimate, £220.]

BREDBURY.—For the erection of a new elementary Council school at the corner of Barrack Hill-road and Berrycroft-lane, Bredbury, to accommodate about 400 children, for the Cheshire County Council (Administrative Sub-Committee for the Ashton-under-Lyne and Stockport Unions' District). Mr. J. Cubbons, A.R.I.B.A., 4, Chapel-walks, Manchester:—

Gerrard & Sons, Swinton, Manchester .. £5,565

BRISTOL.—For the erection of a house at Salford, for Mr. G. L. Vere. Mr. W. H. Watkins, A.R.I.B.A., architect, 15, Clare-street, Bristol:—

T. Lovell & Sons* ..... £776

BRISTOL.—For extensions and alterations to premises at Stokes Croft. Mr. W. H. Watkins, A.R.I.B.A., architect, 15, Clare-street, Bristol:—

Cowlin & Sons* ..... £1,050

CHEADLE.—For erecting an elementary school in Ashfield-road, for the Administrative Sub-Committee for Ashton-under-Lyne and Stockport Unions' District. Mr. R. E. Earnshaw, A.R.I.B.A., 4, Chapel-walks, Manchester:—

*Cheadle School.*

Wilson & Toft, Manchester ..... £6,640

*Hollyworth School.*

Clayton Bros., Poynton, Stockport ..... £8,166

CHEW STOKE (near Bristol).—For repairs and alterations to gardener's cottage, Woodford House, Chew Stoke, for Mr. C. A. Vaughan. Messrs. T. J. Moss-Flower & Davies, architects, Carlton-chambers, Baldwin-street, Bristol:—

| | | | |
|---|---|---|---|
| E. Love | £226 | J. Flower, West Harptree* | £133 |
| E. Colston | 169 | | |

COMPSTALL.—For alterations and additions to elementary school buildings, for the Local Education Authority. Mr. H. Beswick, F.R.I.B.A., County Architect, Newgate-street, Chester:—

T. Rhodes, Bredbury ..... £1,258

DUDLEY.—For erecting four cubicles at the workhouse for the guardians:—

| | | | |
|---|---|---|---|
| F. Smith | £29 17 | T. Watton | £24 10 |
| A. J. Crump | 29 10 | D. Collins | 24 0 |
| D. Marsh | 28 16 | G. Hughes, 12, Tinch-bourne-street, Dudley* | 20 10 |
| M. Round & Sons | 26 4 | | |
| S. A. Webb | 25 15 | | |

HOLLINGWORTH.—For new elementary school, Market-street, for the Cheshire Local Education Authority (Administrative Sub-Committee, Ashton and Stockport). Mr. C. T. Adshead, Architect, Lenister-chambers, St. Anne's-square, Manchester:—

Clayton Bros., Poynton ..... £8,166

HULL.—For additions to the Grammar School, Leicester-street, for the Grammar School Committee. Mr. J. H. Hirst, City Architect, Town Hall, Hull. Quantities by Architect:—

| | | | |
|---|---|---|---|
| G. Houlton & Sons | £5,100 | Trubell, Son, & Greenwood | £4,720 |
| J. H. Fenwick | 4,924 | T. Goates | 4,650 |
| J. Simpson & Sons | 4,900 | M. Harper, Brunswick-avenue, Hull* | 4,637 |
| F. Southern | 4,900 | | |
| F. Singleton | 4,825 | | |
| J. T. Levitt | 4,783 | | |

HULL.—For electric-light installation, fittings, and fans, Selby-street West School, for the Education Committee. Mr. J. H. Hirst, City Architect, Town Hall, Hull. Quantities by Architect:—

| | | | |
|---|---|---|---|
| J. Scott | £1,000 0 0 | Haden & Son | £842 10 9 |
| C. Wokes | 897 0 0 | A. Shaw | 808 10 0 |
| Wallis & Watson | 890 0 0 | J. H. Taylor & Co. | 799 0 0 |
| C. Pullan | 870 0 0 | King & Co. | 793 6 2 |
| Mann, Egerton, & Co. | 865 18 6 | A. C. Dickens | 754 8 0 |
| W. Taylor & Co. | 849 0 0 | W. L. Harrison, Hull* | 688 10 0 |

HULL.—For the alterations and additions required at the Crowle-street, Gordon-street, Norfolk-street, and Church-street police stations, for the Corporation. Mr. J. H. Hirst, City Architect, Town Hall Hull:—

| | | | |
|---|---|---|---|
| Simpson & Sons | £303 10 7 | Hull General Builders, Ltd. | £233 5 4 |
| J. Carr | 283 10 7 | W. Sanderson | 225 0 0 |
| F. Southern | 253 0 0 | G. Jackson & Sons, Witham, Hull* | 206 5 6 |
| M. Harper | 243 10 0 | | |
| T. Goates | 235 0 0 | | |

KING'S LYNN.—For erecting motor garage at the Globe Hotel. Mr. Louis F. Eagleton, architect, King-street, King's Lynn:—

| | | | |
|---|---|---|---|
| A. Robinson | £355 0 0 | Spaulding & Hampton | £329 0 0 |
| J. Medwell | 353 16 2 | Dye & Allen* | 307 0 0 |
| F. Anderson | 351 11 0 | R. W. Fayers & Sons | 305 0 0 |
| F. & S. Dickerson | 346 9 6 | H. W. Barnes & Co. | 285 0 0 |
| Tash & Langley | 340 5 0 | | |
| Renant Bros. | 331 10 0 | | |

[All of Lynn.]

LLWYNYPIA.—For erecting storerooms at Workhouse, for the Pontypridd Guardians. Messrs. A. O. Evans, Williams, & Evans, architects, Post Office-chambers, Pontypridd:—

| | | | |
|---|---|---|---|
| Evans Bros. | £795 | G. Hallett | £600 |
| T. Reynolds & Co. | 680 | G. Harries, Abercynon* | 520 |

LONDON.—For new engines for launches, Battersea Park and Victoria Park, for the London County Council:—

| | |
|---|---|
| De Dion Bouton, Ltd. | £130 0 each |
| Thornycroft & Co., Ltd. | 125 0 » |
| Auxiliary Motor Installation Co., Ltd. | 110 0 » |
| Lister & Sons | 88 8 » |
| Smith & Dowse, Isleworth* | 80 0 » |

LONDON.—For enlargement of school and erection of manual training centre, Addison-gardens, Hammersmith, for the London County Council:—

| | |
|---|---|
| Thompson & Beveridge | £4,972 0 0 |
| Holliday & Greenwood, Ltd. | 4,906 0 0 |
| C. Wall, Ltd. | 4,820 12 8 |
| J. Smith & Sons, Ltd. | 4,626 0 0 |
| Lole & Co. | 4,622 12 2 |
| E. Lawrance & Co. | 4,550 0 0 |
| Galbraith Bros. | 4,521 9 1 |
| Works Committee estimate | 4,514 0 0 |
| J. Garrett & Son | 4,489 0 0 |
| J. & M. Patrick | 4,408 0 0 |
| L. Whitehead & Co., Ltd. | 4,380 0 0 |
| Ford & Walton, Ltd. | 4,338 8 0 |
| E. Triggs | 4,257 0 0 |
| W. Johnson & Co., Ltd., Wandsworth-common* | 4,142 0 0 |

[The estimate of the Architect (Education), comparable with the tenders, is £4,713.]

LONDON.—For enlargement of school, Smallwood-road, Wandsworth, for the London County Council:—

| | |
|---|---|
| A. Roberts & Co., Ltd. | £2,913 0 0 |
| Lathey Bros. | 2,841 0 0 |
| J. Marsland & Son | 2,720 0 0 |
| Lole & Co. | 2,690 7 2 |
| J. Parsons | 2,636 0 0 |
| J. Garrett & Son | 2,612 0 0 |
| W. Akers & Co., Ltd. | 2,608 0 0 |
| J. & M. Patrick | 2,604 0 0 |
| E. P. Bulled & Co. | 2,593 0 0 |
| Rice & Son | 2,515 0 0 |
| L. Whitehead & Co., Ltd. | 2,490 0 0 |
| T. J. Hawkins & Co. | 2,437 16 8 |
| E. Triggs | 2,428 0 0 |
| W. Johnson & Co., Ltd., Wandsworth-common* | 2,382 0 0 |

[The estimate of the Architect (Education), comparable with the tenders, is £2,488.]

LONDON.—For twelve water vans, for the Holborn Borough Council:—

*Box Distributors.*

| | Each. | Total. |
|---|---|---|
| Bayleys, Ltd. | £37 0 0 | £444 0 0 |
| J. W. Glover & Son, Ltd. | 41 10 0 | 498 0 0 |
| Rich. Burgh & Sons | 45 0 0 | 540 0 0 |
| Belleisle Co., Ltd. | 37 0 0 | 444 0 0 |
| W. Smith & Sons* | 38 0 0 | 456 0 0 |
| T. Baker & Son | 45 0 0 | 540 0 0 |

*Patent Sprinklers.*

| | Each. | Total. |
|---|---|---|
| J. W. Glover & Son, Ltd. | £48 0 0 | £576 0 0 |
| Belleisle Co., Ltd. | 46 0 0 | 552 0 0 |
| W. Smith & Sons* | 44 0 0 | 528 0 0 |
| T. Baker & Son | 51 2 6 | 613 10 0 |

LUTON.—For street improvement work in Ash-road, New Town-street, Baker-street, Vernon-road, and Hartley-road, for the Town Council:—

| | | |
|---|---|---|
| G. Powdrill, Luton | Baker-street | £398 0 0 |
| | Vernon-road | 232 0 0 |
| | Hartley-road | 347 0 0 |
| A. E. Palmer, Leicester | Ash-road | 238 0 3 |
| | New Town-street | 102 1 3 |

MORLEY.—For erecting a tall brick chimney at the Bakery, Baker-street, for Messrs. Metcalf & Bradshaw. Mr. T. A. Buttery, architect, Queen-street, Morley, and Basinghall-square, Leeds:—

H. Spensley, High-street, Morley .. £239 13 0

MORLEY.—For alterations and additions to mill premises, Grove Mills, for Messrs. D. Bradley, Ltd. Mr. T. A. Buttery, architect, Queen-street, Morley, and Basinghall-square, Leeds:—

J. Clegg & Sons, Wesley-street, Morley‡ £928 6 9

‡ All trades, including ironfounder.

NEW BILTON.—For 120 yds. of sewer at New Bilton, for Rugby Rural District Council. Mr. T. W. Willard, Surveyor, Rugby:—

Mr. W. T. Denyer, Brinklow, near Coventry* £53 15 0

[Four other tenders.]

NORTHUMBERLAND.—For erecting a social club at Togston-terrace. Mr. G. Reavell, jun., A.R.I.B.A., Alnwick. Quantities by the Architect:—

| | | | |
|---|---|---|---|
| R. Tait | £1,649 5 4 | R. & A. P. Tait | £1,499 2 7 |
| Veitch & Jordan | 1,614 15 5 | J. & G. Green | 1,485 9 6 |
| W. Foster | 1,547 0 0 | A. Douglas | 1,461 2 6 |
| A. C. Burn & Sons | 1,543 19 6 | J. Jackson & Sons | 1,450 0 0 |
| R. Carse & Son | 1,500 0 0 | R. & G. Brown, Amble* | 1,435 9 0 |

PONTARDULAIS.—For works of sewerage for the Swansea Rural District Council. Mr. Morgan W. Davies, A.M.Inst.C.E., 3, Gloucester-place, Swansea:—

| | | | |
|---|---|---|---|
| Bennett Bros. | £6,868 7 2 | J. W. Thompson | £5,382 3 3 |
| E. Powell | 6,849 7 6 | Barnes, Chaplin, & Co., Cardiff* | 5,087 8 6 |
| J. Dickson | 6,442 15 11 | | |
| G. Davies | 5,663 2 0 | | |

SOUTHAMPTON.—For surface water drainage on the platform, for the Harbour Board. Mr. E. Cooper Poole, A.M.Inst.C.E., Engineer to the Board:—

| | | | |
|---|---|---|---|
| Coston & Co., Ltd. | £159 0 | W. J. Whettam | £119 0 |
| J. Douglas | 149 0 | F. Grace* | 108 10 |

[All of Southampton.]

SOUTHEND-ON-SEA.—For the construction of an upper deck, shelters, etc., at the Pier Head, for the Corporation. Mr. E. J. Elford, Borough Engineer, Southend:—

| | | | |
|---|---|---|---|
| W. Rigby | £7,576 | J. C. Flaxman | £6,044 |
| Heenan & Froude | 7,457 | Hurst Engineering Co. | 5,985 |
| A. Fasey & Sons | 7,000 | R. M. Parkinson | 5,974 |
| W. H. Lascelles & Co. | 6,939 | F. & E. Davey, Ltd. | 5,937 |
| J. Cochrane & Sons | 6,746 | F. Davey | 5,925 |
| Kirk & Randall | 6,694 | C. Wall, Ltd., Globe Works, Grays, Essex* | 5,280 |
| Godard, Massey, & Warner | 6,559 | | |
| A. Thorne & Sons | 6,398 | | |
| Jones & Co. | 6,086 | | |

SWAFFHAM.—For alterations, etc., to the children's quarters at the Workhouse, for the Guardians. Mr. L. F. Eagleton, architect, King-street, King's Lynn:—

| | | | |
|---|---|---|---|
| R. Shanks | £165 0 0 | G. Jeffries | £131 0 0 |
| Spalding & Sons | 148 18 0 | Rands & Son | 130 0 0 |
| Read & Wildbur | 145 0 0 | Dye & Allen, King's Lynn* | 128 0 0 |
| E. J. Smith | 136 0 0 | | |

TANTOBIE (Durham).—For erecting new workmen's club and institute, etc. Mr. T. E. Taylor, architect and surveyor, Prospect House, Lanchester and Armfield Plain:—

*Builders.*

| | |
|---|---|
| P. Duffy | £2,700 0 0 |
| W. Southern | 2,558 0 0 |
| Johnstone Bros. | 2,541 0 0 |
| J. H. Moyle | 2,529 18 9 |
| T. Worley, Tantobie, Co. Durham* | 2,483 13 9 |

*Plumbers.*

| | |
|---|---|
| L. Urwin | £268 8 10 |
| M. Bates | 248 16 6 |
| T. A. Moffitt & Co., Gateshead* | 236 17 6 |

WOBURN SANDS.—For alterations to shop premises, High-street, Woburn Sands, for Mr. C. H. Wyman. Messrs. Stonebridge & Foll, architects, Woburn Sands and Bedford:—

| | |
|---|---|
| C. Negus | £270 |
| Messrs. Sinfield & Sons* | 223 |

WOBURN SANDS.—For alterations to house and new butcher's slaughter-house, Woburn Sands, for Mr. Steers' premises. Messrs. Stonebridge & Foll, architects, Woburn Sands and Bedford:—

| | |
|---|---|
| J. Bonner | £198 10 |
| T. Gregory | 198 0 |
| Messrs. Sinfield & Sons* | 195 5 |


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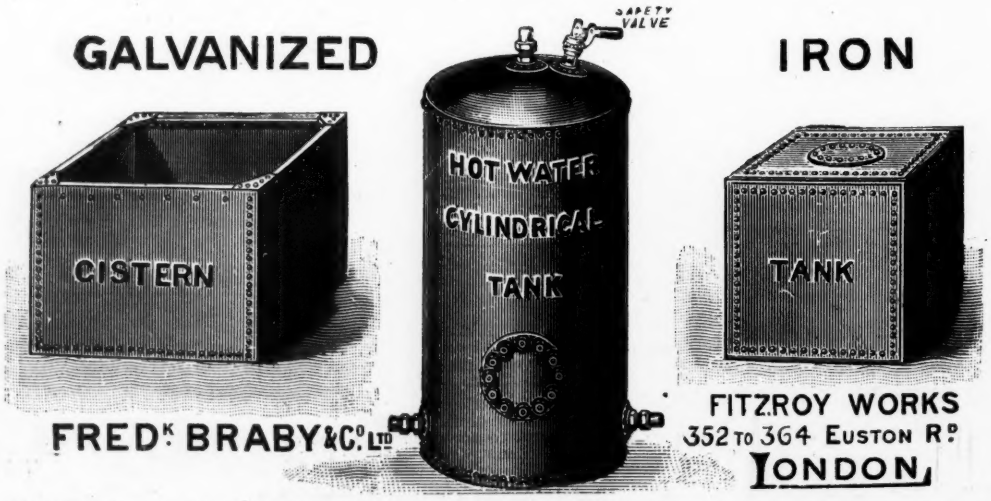


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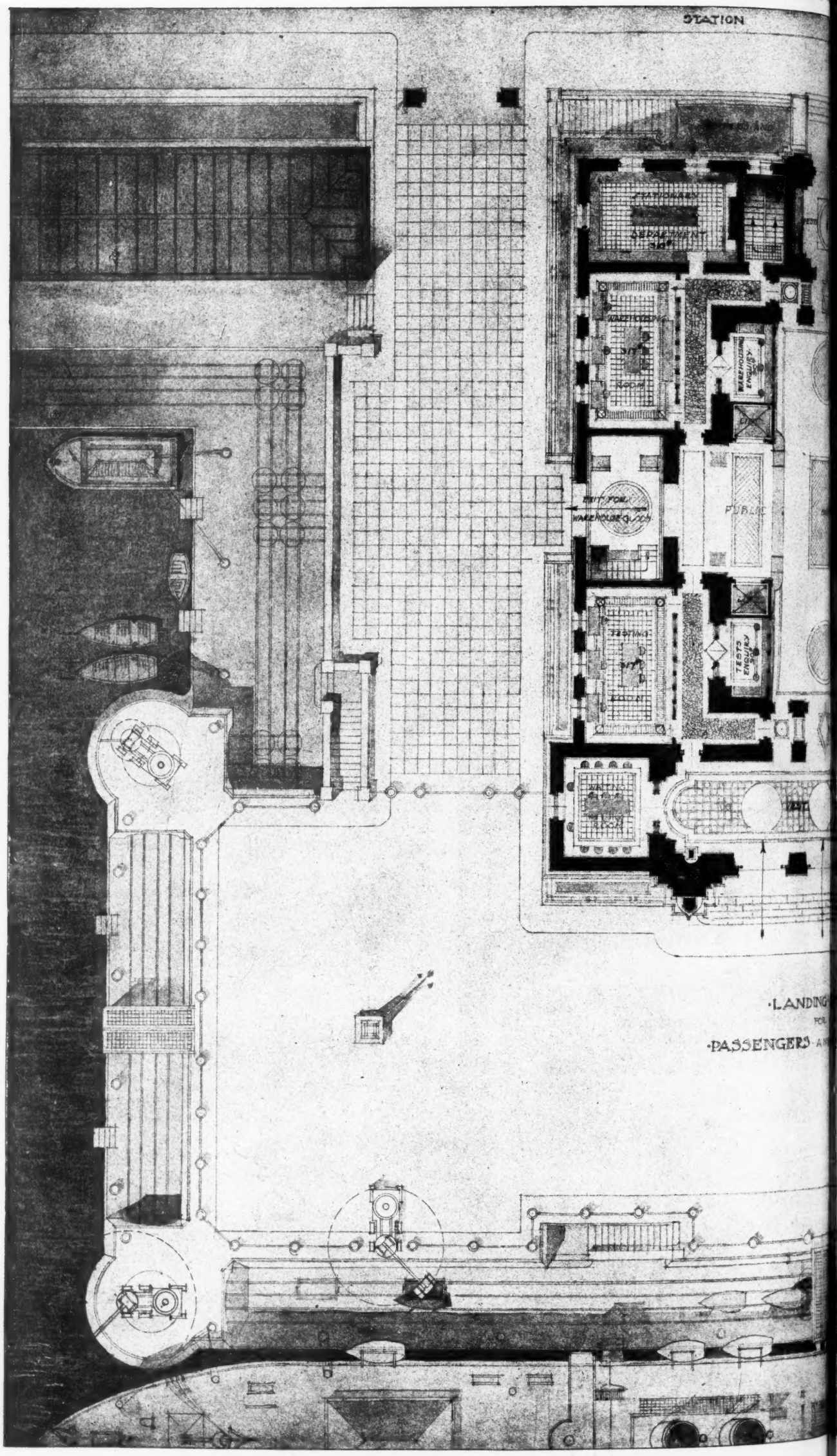
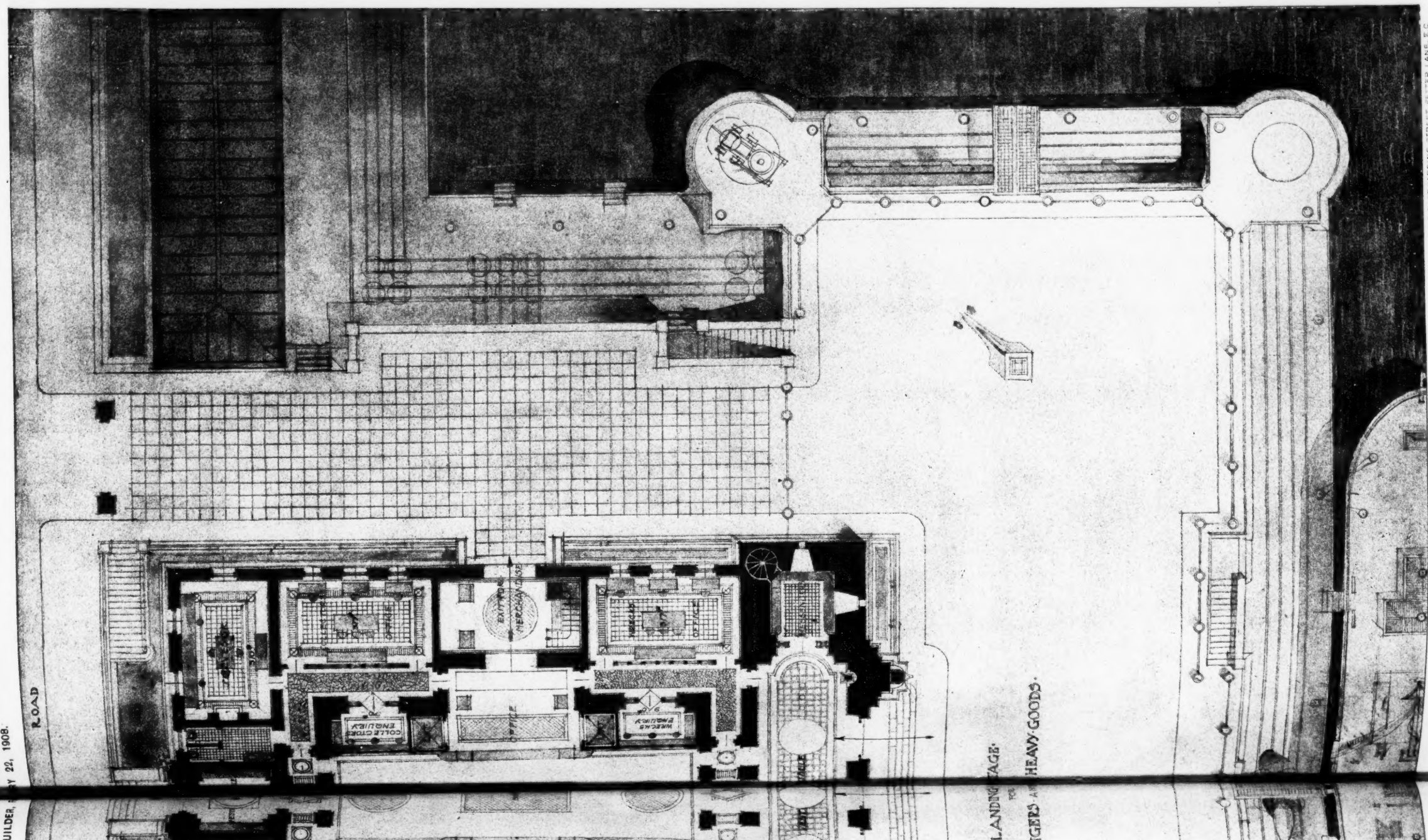



*Soane Medallion, R.I.B.A., 1908*

DESIGN FOR A CUSTOM-HOUSE ON [illegible] QUAY.—By M[illegible]

BUILDER, MAY 22, 1908.

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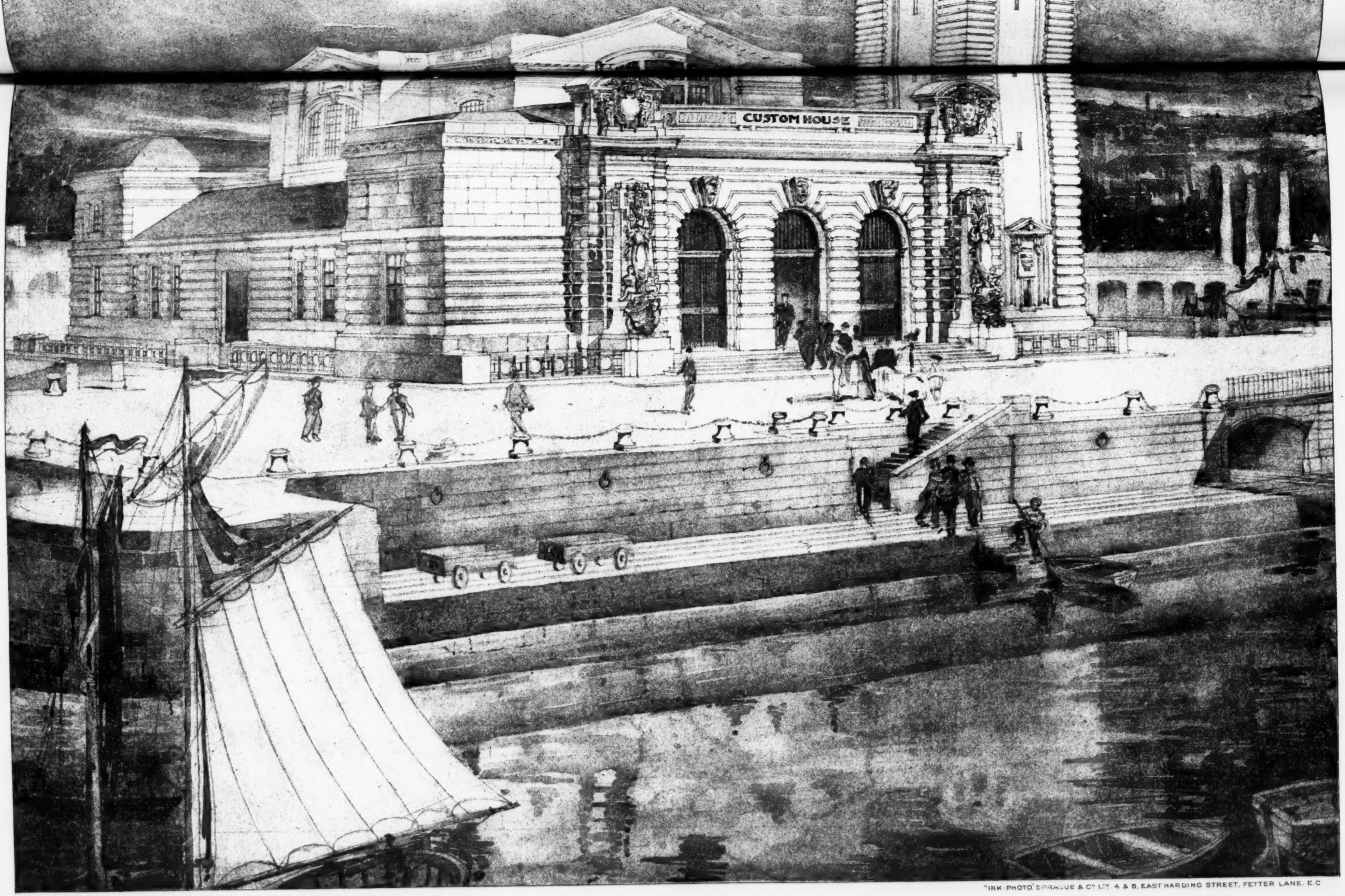
CUSTOM-HOUSE QUAY.—By Mr. George Drysdale.

CUSTOM HOUSE

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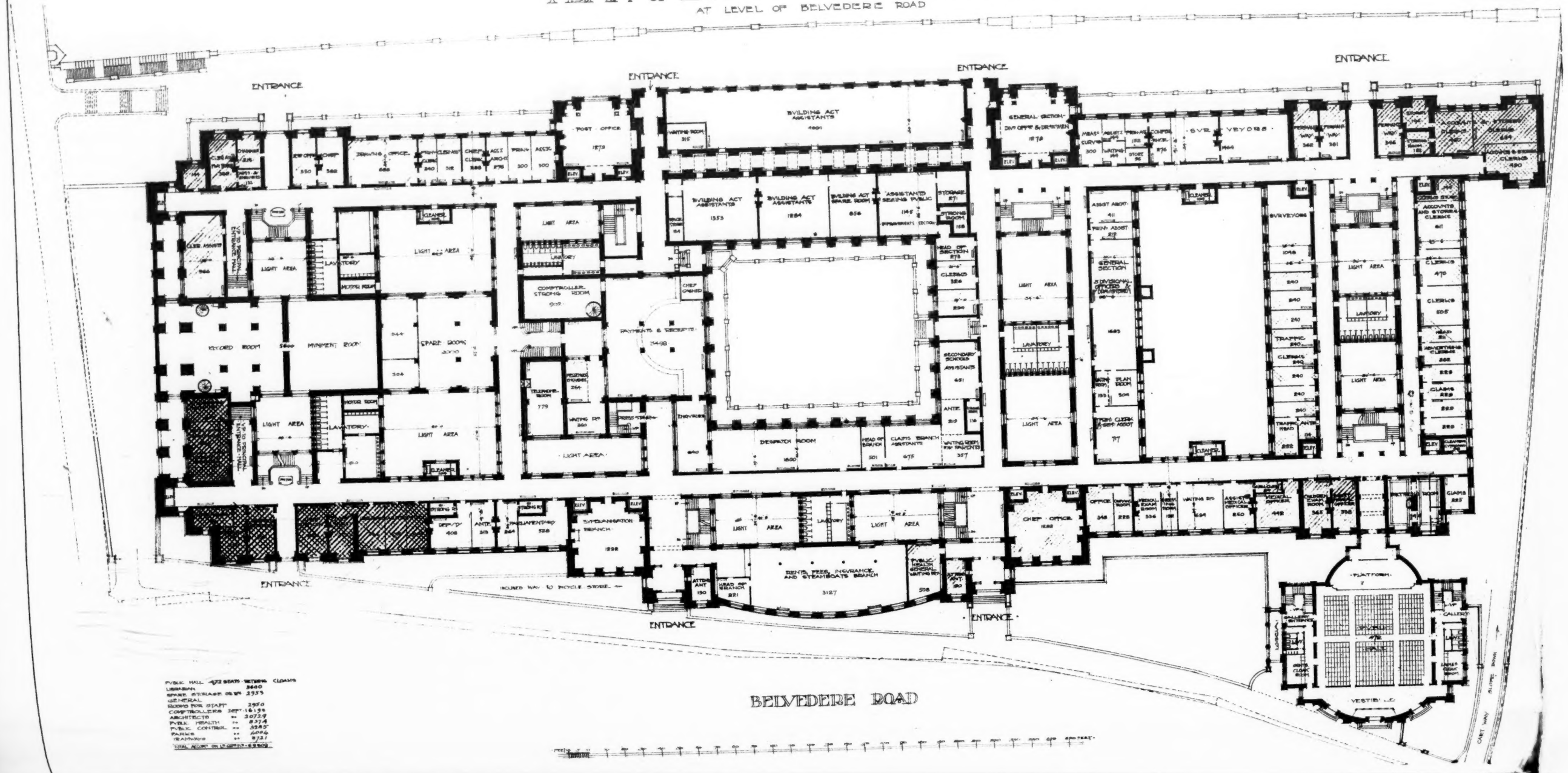
DESIGN FOR A CUSTOM-HOUSE ON A QUAY.—By Mr. George Drysdale.

PERSPECTIVE VIEW.

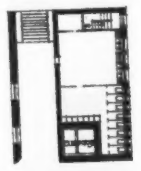
*Soane Medallion, R.I.B.A., 1908.*

# PLAN OF LOWER GROUND FLOOR

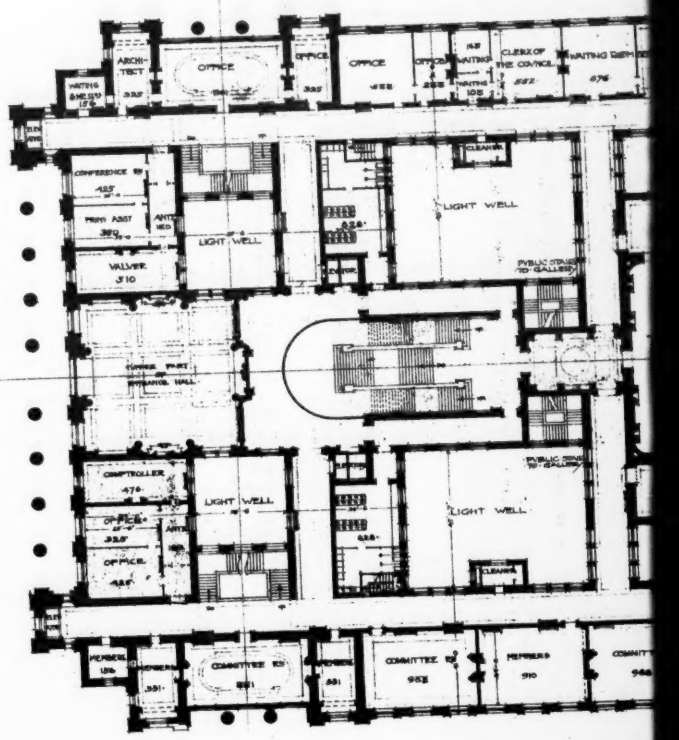
AT LEVEL OF BELVEDERE ROAD




PUBLIC HALL 422 SEATS WITHIN CLOAKS
LIBRARIAN 2660
SPARE ROOMS, &c. 2535
WATER-CLOSETS
BLOCKS FOR STAFF 2870
COMPTROLLERS DEPT 16158
ARCHITECT " 20729
PUBLIC HEALTH " 8242
PUBLIC CONTROL " 8242
RATES " 4996
MISCELLANEOUS " 9781
TOTAL ACCOM. ON LOWER FLOOR 65382

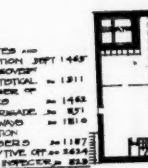


PLAN OF LAVATORY MEZZANINE BETWEEN PRINCIPAL GROUND FLOORS




COUNCIL CHAMBER 493 SEATS
VOTING LOBBIES 1813
MEMBERS AREA 1813
COMMITTEE ROOMS 1858
CHAIRMAN 2000
GENERAL ROOMS PER STAFF
CLERK TO COUNCIL 1794
COMPTROLLERS DEPT 1409
ENGINEER " 1969
ARCHITECTS " 1969
SOLICITORS " 1969
PUBLIC HEALTH " 1838
TOTAL ACCOMMODATION ON PRINCIPAL FLOOR

ESTATES " 1469
VALUATION DEPT 1469
LEGAL ADVISER " 1211
STATISTICAL " 1211
WORKS " 1469
PUBLIC PROTECTION " 1211
TRANSPORT " 1814
EDUCATION " 1469
ADVISERS " 1187
EXECUTIVE OFFICER " 5434
CHIEF INSPECTOR " 838



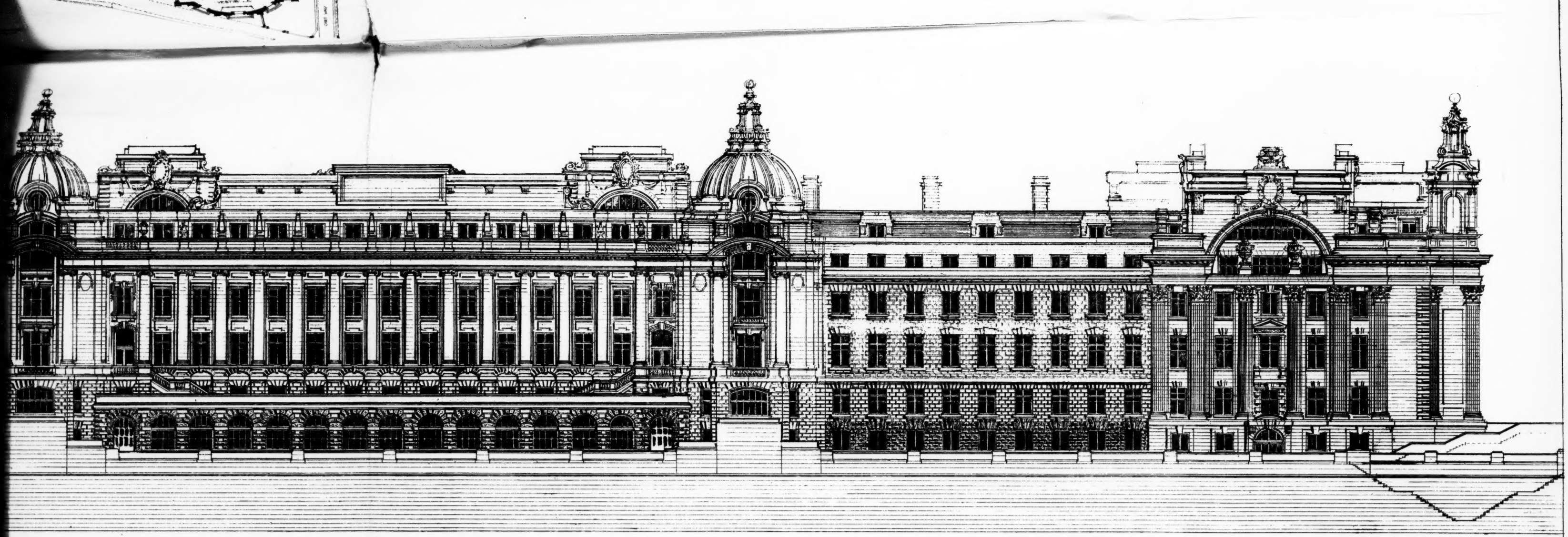
PLAN OF LAVATORY MEZZANINE BETWEEN PRINCIPAL GROUND FLOORS

· ELEVATION · TO · RIVER ·

LONDON COUNTY HALL COMPETITION.—Design by Mr. W. Flockhart, F.R.I.B.A.

# PLAN OF PRINCIPAL FLOOR

THE BUILDER, FEBRUARY 22, 1908.



· ELEVATION · TO · RIVER ·

FEET

PHOTO-LITHO. SPRAGUE & Cº L.ᵀᵈ 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

LONDON COUNTY HALL COMPETITION.—Design by Mr. W. Flockhart, F.R.I.B.A.